APPLICATION REVIEW

AND DETERMINATION OF INITIAL COMPLIANCE

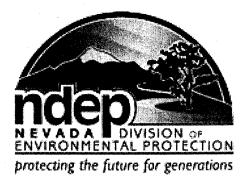
FOR:

BARRICK GOLDSTRIKE MINES

Eureka County, Nevada; HA – 61U

Class I Air Quality Operating Permit-to-Construct (OPTC)

AP1041-2805 (Revision)
FIN A0005, Resin-in-Leach (RIL) Project
Air Case #7349



BY

STATE OF NEVADA
DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES
DIVISION OF ENVIRONMENTAL PROTECTION
BUREAU OF AIR POLLUTION CONTROL

PAT MOHN, P.E. STAFF ENGINEER III

JULY 2013

1.0 INTRODUCTION

On February 19, 2013, Barrick Goldstrike Mines, Inc. (BGM) submitted an application for revision of Class I Air Quality Operating Permit-to-Construct (OPTC) AP1041-2805. The draft permit covers modifications to BGM's proposed resin-in-leach (RIL) gold extraction facility. The current application was deemed administratively complete on March 28, 2013, which constitutes the Official Date of Submittal (ODS) of the application. The regulatory deadline for issuance/denial of the OPTC revision is September 24, 2013, 180 days after the ODS (NAC 445B.3364.10).

By June 3, 2013, the BAPC had completed the requisite air dispersion modeling, construction of a draft permit, and the technical review. However, on June 25, 2013, the BAPC received amendments to the original application from BGM. These amendments required that the BAPC reconstruct some permit conditions and re-model for all pollutants. At the very least, the BAPC is entitled to an extra 22 days to complete the technical review of the application. Therefore, the new deadline for issuance/denial of the OPTC revision will be no earlier than October 17, 2013.

The Standard Industrial Classification (SIC) code for this facility is 1041 (Gold Ore Processing). The BGM is a major stationary source, with emissions of one or more criteria pollutants greater than 250 tons per year. However, the proposed RIL project will not trigger PSD applicability thresholds for the BGM property as a whole, so PSD review is not required for this permit action.

2.0 DESCRIPTION OF PROCESS

2.1 OVERVIEW

BGM proposes the following changes to their Class I OPTC:

- Remove Systems 125A, 125B, 126A, and 126B from the permit.
- Revision to increase the hourly and annual SO₂ emission limits for System 67, Mercury Retorts 1-4. In addition, BGM amended the descriptive stack parameters for System 67, and added an SO₂ scrubber as one of the controls for System 67.
- Revision to decrease the hourly and annual SO₂ limits for System 68, Refinery Melting Furnaces & EW Cells.
- Add Systems 141A TKI 12 MMBtu Boiler (Natural Gas) and 141B TKI 12 MMBtu Boiler (Propane, Alt. Scenario).
- Add Systems 142A TS Regen Heater (Natural Gas) and 142B TS Regen Heater (Propane, Alt. Scenario).
- Add Systems 143A Resin Regen Heater 1 (Natural Gas) and 143B Resin Regen Heater 1 (Propane, Alt. Scenario).
- Add System 144 RIL Emergency (Diesel) Generator (3,634 HP 2,500 kW)
- Add IA1.001 and IA1.002 to the Insignificant Activity list. These were approved by the Director on October 26, 2011 (Air Case 12AP0159).
- Add Insignificant Activity, IA1.004 Electrowinning Water Heater (2.5 MMBtu).

In addition to the revisions requested by BGM, the BAPC made the following corrections to the OPTC in general:

- Removal of the incorrect citation NAC 445B.346.2 from the various sections of the OPTC. The citation that was removed pertains to Class II Operating Permits only.
- Amend the NAC citations for reporting throughout the OPTC, so as to reference compliance with NAC 445B.001 445B.3689 (inclusive).
- <u>Correct</u> the emission limits for System 130 by combining the hourly and annual H2S emissions for S2.336-S2.338 and for S2.339-S2.340. The total hourly and annual emission limits for the system as a whole are not changing.

3.0 <u>APPLICABLE REGULATIONS</u>

3.1 NEVADA REVISED STATUTES

The Nevada Revised Statutes (NRS) are the current codified laws of the State of Nevada. The NRS is the statutory authority for the adoption and implementation of administrative regulations. The statutes relating to the control of air pollution are contained in Title 40, Public Health and Safety, Chapter 445B, Air Pollution, NRS 445B.100 through NRS 445B.640. The NRS specifies that the State Environmental Commission is the governing body given the power to adopt administrative regulations. Because the NRS is the enabling statutory authority, very few specific requirements are contained in the statutes. Rather, the NRS provides, generally, broad authority for the adoption and implementation of air pollution control regulations. The BGM RIL facility will be subject to the NRS and will need to comply with all applicable regulations under the NRS. The NRS may be viewed at the following website: http://www.leg.state.nv.us/NRS/Index.cfm

3.2 NEVADA ADMINISTRATIVE CODE

The Nevada Administrative Code (NAC) contains the regulations that have been adopted by the State Environmental Commission (SEC), pursuant to the authority granted by the Nevada Revised Statutes (NRS), relating to the control of air pollution. The NAC requires that, where State regulations are more stringent in comparison to Federal regulations, the State regulations are applicable. The NAC sets forth, by rule, maximum emission standards for visible emissions (opacity), PM₁₀ (particulate matter less than 10 microns in diameter) and sulfur emitting processes. Other requirements are established for incinerators, storage tanks, odors and maximum concentrations of criteria air pollutants in the ambient air. Other NAC regulations specify the requirements for applying for and method of processing applications for operating permits. All the equipment considered in this application must meet, at a minimum, the applicable standards and requirements set forth in the NAC, specifically, the emission standards contained in NAC 445B.22027 through 445B.22033 for particulate matter, 445B.2204 through 445B.22047 for sulfur emissions, 445B.22017 for opacity, and the Nevada Ambient Air Quality Standards as set forth in NAC 445B.310 through 445B.311. The NAC may be viewed at the following website:

http://www.leg.state.nv.us/NAC/CHAPTERS.HTMl

3.3 NEVADA APPLICABLE STATE IMPLEMENTATION PLAN

The Applicable State Implementation Plan (ASIP) is a document that is prepared by a state or local air regulatory agency and required to be submitted to the U.S. EPA for approval. Title I of the Clean Air Act is the statutory authority for the U.S. EPA regulations that require a State to submit a ASIP. The contents of the ASIP are intended to show how a state, through the implementation and enforcement of the regulations contained in the ASIP, will either show how attainment of the national ambient air quality standards (NAAQS) will be achieved or how a state will continue to maintain compliance with the NAAQS.

3.4 CODE OF FEDERAL REGULATIONS

The Code of Federal Regulations (CFR) are regulations adopted by the U.S. EPA and published in the Federal Register pursuant to the authority granted by Congress in the Clean Air Act. The CFR addresses multiple aspects, including but not limited to, permitting requirements, performance standards, testing methods, and monitoring requirements. The CFRs may be viewed online at the following website: http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr&tpl=%2Findex.tpl

3.0 <u>APPLICABLE REGULATIONS (continued)</u>

3.4.1 NEW SOURCE PERFORMANCE STANDARDS

Section 111 of the Clean Air Act, "Standards of Performance of New Stationary Sources," (NSPS) requires EPA to establish federal emission standards for source categories which cause or contribute significantly to air pollution. Each NSPS defines the facilities subject to these requirements and prescribes emission limits for specified pollutants, compliance requirements, monitoring requirements, and test methods and procedures. These standards are intended to promote use of the best air pollution control technologies, taking into account the cost of such technology and any other non-air quality, health, and environmental impact and energy requirements. These standards apply to sources which have been constructed or modified since the proposal of the standard. Since December 23, 1971, the Administrator has promulgated 88 such standards and associated test methods. These standards can be found in the CFR at Title 40 (Protection of Environment), Part 60 (Standards of Performance for New Stationary Sources).

Generally, state and local air pollution control agencies are responsible for implementation, compliance assistance, and enforcement of the NSPS. EPA retains concurrent enforcement authority and is also available to provide technical assistance when a state or local agency seeks help. EPA also retains a few of the NSPS responsibilities such as the ability to approve alternative monitoring methods to maintain a minimum level of national consistency.

This section outlines the NSPS applicability for the new permitted emission units.

- System 141A/B: 12 MMBtu TKI Boiler: This equipment is subject to 40 CFR Part 60, Subpart Dc Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units. Because System 141 combusts only gaseous fuels (i.e. natural gas or propane), there are no periodic testing requirements or emission limits. Only notification and monitoring apply, as set forth in the draft revised OPTC.
- The new process heaters of Systems 142 and 143 are <u>exempt</u> from 40 CFR Part 60, Subpart Dc, because they are not steam generating units.
- System 144: RIL Emergency Generator (3,634 HP 2,500 kW): The new RIL Emergency Generator (dieselfired) is subject to 40 CFR Part 60, Subpart IIII Standards of Performance for Stationary Compression Ignition Internal Combustion Engines (ICE). BGM requested 100 hours per year of operation for non-emergency use, which qualifies the unit as an emergency generator, as set forth in the NSPS standard. The CAT 3516C (2,500 kW) engine is certified to the Tier 2 standards, and only the Tier 2 standards apply to this size engine under Subpart IIII.

3.0 APPLICABLE REGULATIONS (continued)

3.4.2 FEDERAL NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS

NESHAP for hazardous air pollutants (HAPs) are established in the CFR pursuant to Section 112 of the Clean Air Act Amendments of 1990. These standards regulate air pollutants that are believed to be detrimental to human health. The NESHAP program applies to all sources, both existing and new. These standards are codified in Title 40 CFR Parts 61 and 63.

Part 61, which predates the Clean Air Act Amendments of 1990, includes specific standards, reporting and recordkeeping requirements, and test methods for the initial eight hazardous air pollutants: asbestos, benzene, beryllium, coke oven emissions, inorganic arsenic, mercury, radionuclides, and vinyl chloride. The regulations covering these eight hazardous air pollutants focused on health-based considerations. NESHAPs were established for certain operations that commonly emit the eight hazardous air pollutants.

Other substances were included for consideration due to the serious health effects, including cancer, which may occur from ambient air exposure to those substances. However, no specific restrictions were placed on facilities that used or released these compounds.

Under the Clean Air Act Amendments of 1990, Congress greatly expanded the Air Toxics program, creating a list of 189 substances to be regulated as hazardous air pollutants. Rather than regulating individual pollutants by establishing health-based standards, the new Air Toxics program granted EPA the authority to regulate specific industrial major source categories with NESHAPs based on maximum achievable control technology (MACT) for each source category. Thus, a number of NESHAPs have been established to regulate specific categories of stationary sources that emit (or have the potential to emit) one or more hazardous air pollutants.

The standards in 40 CFR Part 63 are independent of the NESHAPs contained in 40 CFR Part 61 which remain in effect until they are amended, if appropriate, and added to this part. More information on NESHAPs can be found at the EPA Unified Air Toxics Website (http://www.epa.gov/ttn/atw/).

NESHAPs may cover both major sources and area sources in a given source category. Major sources are defined as those facilities emitting, or having the potential to emit, 10 tons per year or more of one Hazardous Air Pollutant (HAP) or 25 tons per year or more of multiple HAPs. Major sources are required to comply with MACT standards. Area Sources are defined as those facilities that are not major sources.

The following outlines the NESHAP applicability for the current permit action:

- System 141 (12 MMBtu TKI Boiler) is <u>exempt</u> from the new NESHAP for *Boilers* (i.e. Boiler MACT), 40 CFR Part 63, Subpart JJJJJJ, because this emission unit is located at an *Area Source* (of HAPs) and combusts only gaseous fuels. As such, this unit is considered a "gas-fired boiler", because it combusts natural gas and propane, thus qualifying System 141 for the exemption under the provisions of Subpart JJJJJJ, as set forth in 40 CFR 63.11195(e).
- The process heaters of new Systems 142 and 143 <u>are not</u> subject to 40 CFR Part 63, Subpart JJJJJJ because they are not boilers. Process heaters are covered only under the *major source* boiler MACT (40 CFR Part 63, Subpart DDDDD), but BGM is not considered a major source of HAPs.

3.0 APPLICABLE REGULATIONS (continued)

3.4.2 FEDERAL NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS (CONTINUED)

• System 144: RIL Emergency Generator: This equipment is subject to 40 CFR Part 63, Subpart ZZZZ – NESHAP for Stationary Reciprocating Internal Combustion Engines. However, if the requirements are met for NSPS Subpart IIII, then there are no further applicable requirements under Subpart ZZZZ.

3.4.3 PREVENTION OF SIGNIFICANT DETERIORATION DETERMINATION

The Prevention of Significant Deterioration (PSD) permitting program is a Clean Air Act permitting program for new and modified major stationary sources of air pollution. Implementation of the federal PSD regulations is delegated to the State of Nevada by U.S. EPA and these regulations are contained at 40 CFR Part 52.21. Therefore, BAPC implements the federal PSD regulations directly. These regulations specify federally required permitting procedures for each "major stationary source".

"Major" is defined as the potential to emit of a stationary source, which equals or exceeds a specified threshold (in tons per year) of any air pollutant regulated under the Clean Air Act (40 CFR 52.21(b)(1)). The first threshold is for a stationary source that emits or has the potential to emit 100 tons per year or more of any regulated NSR pollutant and is defined as one of 28 specific categories of sources (see 40 CFR 52.21(b)(1)(i)(a)). The other applicability threshold is for any other stationary source that emits or has the potential to emit 250 tons per year of any regulated NSR pollutant (see 40 CFR 52.21(b)(1)(i)(b)).

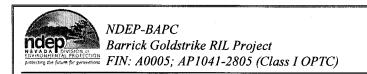
BGM is a major PSD stationary source for several pollutants (see Section 4). BGM's Title V renewal permit was issued in January 2008. Since then, various applications for revision of BGM's Title V permit have been processed. No application for revision since the 2008 renewal has triggered PSD permitting requirements, nor has there been a determination that any of those projects required aggregation. The increase in emissions from the proposed revisions to the OPTC do not exceed PSD significant emissions levels for any PSD pollutant for which the BGM property is already a major stationary source. As such, a PSD applicability determination for the current permit action is not required. Moreover, project aggregation is not required, because the proposed revisions included in the OPTC are not related to any past projects in BGM's current Title V permit.

3.0 <u>APPLICABLE REGULATIONS (continued)</u>

3.4.4 COMPLIANCE ASSURANCE MONITORING (CAM) – 40 CFR Part 64

Compliance Assurance Monitoring (CAM) plans are required for major sources required to obtain Title V (Part 70 or 71) permits. The CAM rule was signed on October 3, 1997 and came into effect on November 21, 1997. The U.S. EPA developed the CAM rule to focus on monitoring of certain operating parameters to ensure compliance with emission limitations in-between scheduled source tests. CAM requirements apply to stationary sources that: (1) are equipped with post-process pollutant control devices; (2) have pre-control device emissions equal to or greater than 100% of the major source threshold for a pollutant; and (3) are subject to the Title V permit program.

It must be noted that, because the current permit action involves a state-only OPTC, CAM requirements do not apply in this case.



4.0 EMISSIONS INVENTORY

4.1 PROPOSED EMISSIONS

The facility-wide emissions inventory summary for the current OPTC is presented in Table 4.1. The facility is a major stationary source for PM, PM_{10} , SO_2 , NO_X , and CO. However, for brevity, the table below only shows the net change in emissions for the current permit action involving the OPTC.

With respect to PSD applicability for the proposed Class I OPTC revision, the net changes do not trigger PSD applicability, because they do not exceed the PSD SEL thresholds listed below. It must be noted that most emissions *decrease* as a result of the proposed revisions to the Class I OPTC. The net SO₂ PTE increases by only 1.03 tons per year.

The RIL project adds less than 1 tpy total HAPs, mainly from fuel combustion, and secondarily from gold refining operations (Hg). The BAPC has verified in previous permit actions that the BGM facility as a whole will remain an area source of HAPs, with the emissions of any single HAP < 10 tpy, or the emissions of any combination of HAPs < 25 tpy. As part of processing their Title V renewal application, BGM will be required to provide an updated HAP inventory.

Based on the foregoing, the proposed revisions to the Class I OPTC will not trigger any PSD permitting requirements for NSR pollutants or GHG's.

Barrick G	oldstril		ble 4. IL Ci	ar algablik	OPTO	: Revi	sion		
	Pote	ntial-to	-Emit (July 20	13)				
and the second s				OPTC A	onual Emi	issions (tor	ıs/yr)		
System	PM	PM ₁₀	PM _{2.5}	SO ₂	NOx	CO	VOC	H ₂ S	CO ₂ e
Totals for June 2011 New Class I OPTC	7.40	7.32	7.32	9.93	32.19	58,43	9.22	0.81	52,263
Totals for July 2013 Revised Class I OPTC	4.62	4.54	4.54	10.96	16.13	16.67	2.83	0.81	14,291
Net Change in PTE for July 2013 OPTC Revision	-2.78	-2.78	-2.79	1.03	-16.06	-41.76	-6.39	0.00	-37,972
PSD Significant Emissions Levels (SELs)	25	15	10	40	40	100	100	ot major for ollutants	75,000

Note: Barrick Goldstrike is a major stationary source for PM, PM₁₀, SO₂, NO_X, and CO (PTE > 250 tpy for each of these pollutants). However, only the emissions inventory for the changes associated with modification of the Class I OPTC are summarized and compared to the PSD SELs. The large decrease in CO_2e is largely the result of Barrick's removal of a large (81 MMBtu) boiler from the permit. However, several smaller combustion units were added for the July 2013 permit revision. PSD review is not required for this permit action.

July 2013 Revision Technical Review

5.0 AMBIENT AIR IMPACT ANALYSIS

5.1 INTRODUCTION/ PURPOSE

The purpose of this analysis is to determine the likely air quality impacts resulting from operation of the BGM property after the proposed revisions are made.

5.2 CLASSIFICATION OF AIR BASIN

The BGM property is located in Air Quality Hydrographic Basin (HA) 61U, the Boulder Flat Area (Upper) of the Humboldt River Basin. HA 61U is currently unclassified for all criteria pollutants. The unclassifiable designation has been developed due to lack of available monitoring data to properly classify the air basin. HA 61U is not triggered for PSD.

5.3 AIR QUALITY MODELING ANALYSIS

5.3.1 AIR DISPERSION MODEL

The BAPC performed the requisite air dispersion modeling analysis and environmental evaluation for the current permit action using the currently approved/preferred U.S. EPA model AERMOD. The BAPC performed check runs to assess the sensitivity of the model to minor changes in source input parameters. The BAPC used Lakes Environmental's *AERMOD-View* graphical-user interface to input source information, generate receptors, and to actually run AERMOD (v. 12345).

5.3.2 AVERAGING PERIODS

The BAPC performed check model runs for all criteria pollutants for which there is an air quality standard and a PTE. These included PM_{10} (24-hour, Annual), SO_2 (3-hour, 24-hour, Annual), NO_X (Annual), CO (1-hour and 8-hour), and H_2S (1-hour). Ozone impacts were determined using Scheffe screening tables (see below). The Nevada Ambient Air Quality Standards (AAQS) are listed in Table 5.4-1. Demonstration of compliance with the Nevada AAQS is done by modeling the highest-first-high (H1H) concentration for each pollutant for short-term averaging periods. Because the current permit action did not trigger PSD permitting, modeling for the 1-hour SO_2 , 1-hour NO_X , and $PM_{2.5}$ was not performed.

5.3.3 SOURCE PARAMETERS

Source input parameters were provided by BGM. No hour-of-day scalars (HROFDY) were used in the modeling. All emission sources were modeled at their maximum (or higher) hourly emission rates. All emission sources were referenced to the UTM NAD 83 project datum, as were buildings, fenceline corners, and receptors. There are 118 point and 143 volume sources in the model, with fewer point sources in the model for the gaseous pollutants. Some process equipment with multiple release points were modeled as a single point source.

5.3.4 RECEPTORS

The BAPC placed plant boundary receptors at 25 meter intervals, with a proximal receptor array spaced at 50 meter intervals out to a distance of 300 meters from the fenceline. Distal receptors extend 1,500 m from the fenceline and are spaced in a rectilinear 50x100 meter grid. A total of 14,160 receptors were included in the model.

5.0 AMBIENT AIR IMPACT ANALYSIS (CONTINUED)

5.3.5 METEOROLOGICAL DATA

One-year of on-site meteorological data was used for modeling. BGM processed on-site meteorological data for the year 2007 using the AERMOD meteorological pre-processor AERMET.

However, the newest version of AERMOD will not run with .SFC and .PFL files prepared using older versions of AERMET. Therefore, BGM's AERMET run-stream files and raw meteorological data were re-processed by the BAQP, using a more recent, compatible version of AERMET (v. 12345).

Informational messages in the AERMOD output file indicated greater than 50% missing data in the meteorological file, presumably due to missing "cloud cover" descriptors in the original meteorological file. However, the BAQP verified that BGM's original 2007 raw meteorological data was at least 90% complete. The BAQP also explained that AERMET does not require cloud cover data, but instead uses measured solar radiation. It must be noted that the AERMOD runs using .SFC and .PFL files created in AERMET version 06341 did not generate the "missing cloud cover" informational message in the final AERMOD output, despite the fact that the same raw meteorological data was used.

A review of the most recent description of how the AERMOD model was formulated (EPA-454/R-03-004, 2004) corroborates the BAQP's determination regarding cloud cover data. The EPA document clearly stated that missing cloud cover data is substituted by on-site solar radiation measurements and the 2m and 10m temperature gradient. Therefore, it is highly unlikely that the missing cloud cover data would have any impact on the final model results.

5.3.6 BUILDING DOWNWASH

In accordance with current U.S. EPA and BAPC guidelines, building downwash was considered for all model runs. Building downwash effects were evaluated using the BPIP-PRIME algorithm to calculate projected building heights and widths for each point source in the model. This information is used by AERMOD to determine whether plume dispersion from a particular point source will be influenced by building downwash. In general, building downwash will cause the model to generate higher pollutant concentrations at the closest point of public access. The results indicated that building downwash effects are pronounced for most of the point sources in the model.

5.3.7 TERRAIN

AERMOD requires that elevated terrain be considered in air dispersion modeling analyses. Therefore, elevations were processed in AERMAP (v. 11103) using the National Elevation Dataset (NED, 30 m), processed in NAD 83 coordinates.

5.3.8 BACKGROUND CONCENTRATIONS

The BAPC has not operated any ambient monitoring sites in the vicinity of the BGM property. Therefore, PM_{10} backgrounds of $10.2 \,\mu\text{g/m}^3$ and $9 \,\mu\text{g/m}^3$ (pristine, rural areas) were used for the 24-hour and annual averaging periods, respectively. Background concentrations for the gaseous pollutants are assumed to be zero.

5.0 AMBIENT AIR IMPACT ANALYSIS (CONTINUED)

5.4 AIR QUALITY IMPACT ASSESSMENT

Results of air dispersion modeling are presented in Table 5.4-1. As can be seen, operation of the BGM property with the proposed revisions to the OPTC will not result in violations of the Nevada AAQS, because the total impacts (plus background) are less than the applicable AAQS values. Modeling by the BAPC confirmed that the highest impacts were at the fenceline.

B	arrick G	oldstrik	Table e - RIL C		uly 2013 F	Revision	
	BAI	?C Air I	Dispersion	a Model	- July 201	13	
Pollutant	AAQS Averaging Period	BAPC Model Met Year	BAPC 2013 Model	Backgr. Conc.	BAPC Total Impact	AAQS	BAPC Percent o Standard
			μg/m3	μg/m3	μg/m3	μg/m3	%
	24-hr	2007	51.8	10.2	62.0	150	41
PM10	Annual	2007	10.2	9	19.2	50	38
	3-hr	2007	63.4	0	63.4	1,300	.
SO ₂	24-hr	2007	10.9	0	10.9	365	3
	Annual	2007	2.3	0	2.3	80	3
NOX	Annual	2007	6.7	0	6.7	100	7
	1-hr	2007	1,368	0	1,368	40,500	3
CO	8-hr	2007	269	0	269	7,000	4
ЊS	1-hr	2007	104.6	0	104.6	112	94
О3	1-hr	N/A	32	0	32	235	14

Note: One year on on-site meteorology was used for modeling. PM10 background values are from monitoring performed at Lehman Caves, Great Basin NP. Ozone increment based on Scheffe screening tool. The 1-hour SO2, 1-hour NOX, and PM2.5 standards were not modeled, because the current permit action is not a PSD action, and because these standards have not yet been adopted as Nevada standards.

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5.0 AMBIENT AIR IMPACT ANALYSIS (CONTINUED)

5.5 OZONE SCREENING

BGM performed an assessment of worst-case, potential ozone impacts from operation of the BGM property. Ozone screening was performed using reference tables in the U.S. EPA document entitled, VOC/NO_XPoint Source Screening Tables, by Richard Scheffe (1988), based upon the annual PTE for NO_X and VOCs. The Scheffe method gives a good indication of the maximum ozone impacts for the 1-hour averaging period, taking into consideration a common array of photochemical mechanisms for formation of ozone in both rural and urban settings.

Using the Scheffe method, the BAPC determined that the maximum ozone increment will be $32 \mu g/m^3$, with the 1-hour ozone standard of $235 \mu g/m^3$. Therefore, ozone screening using the Scheffe method demonstrates compliance with the Nevada AAQS. As such, a more refined modeling analysis for ozone is not warranted for this permit action.

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6.0 CONCLUSIONS / RECOMMENDATIONS

Based on the above review and supporting data and analyses, operation of the BGM property under the new conditions of the draft revised Class I OPTC, will not result in violations of any applicable ambient air quality standards.

Appendix 1 – Barrick RIL Process Flow Diagram

Appendix 2 - Emissions Inventory Spreadsheets for revised and new systems

Appendix 3 – BAPC Draft Revised Class I OPTC AP1041-2805

Pat Mohn, Staff Engineer III

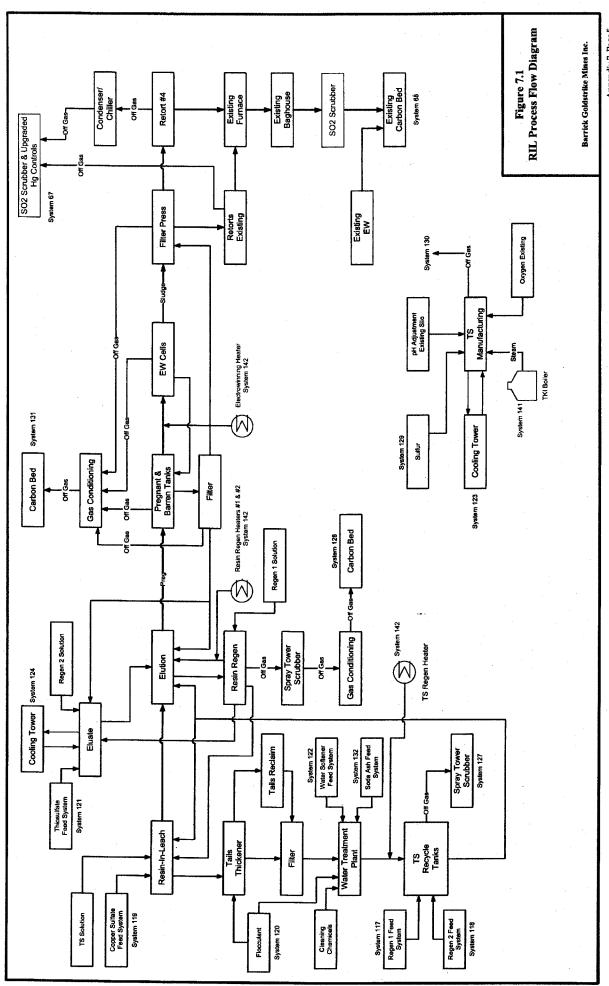
Date

Jeffrey Kinder, P.E.

Supervisor, Permitting Branch

7/26/2013

Date



Appendix 7, Page 5

	Nevada Division of Environment Bureau of Air Pollution C		Facility Name:	BARRICK G	OI DSTRIKE		By: PAT MOHN	Date: 5/21/2013
	POLLUTANTS		Project Name:				7349	Air Case: REVISION
FIN:	EMISSIONS CALCULAT A0005 Permit Number: A		System:	RIL CIRC			XXXX XXXX	TYPE OF AP TYPE OF AP
Alt Opera	ating Scenario? NO	Notes ncreasing hourly and annual SO2 emi	ssion limits.			1 0000 1 00000 1 0000 1 0000 1 0000 1 0000 1 0000 1 0000 1 0000 1 0000 1 00000 1 0000 1 0000 1 0000 1 0000 1 0000 1 0000 1 0000 1 0000 1 00000 1 0000 1 0000	Approved	Date: 7/26/2623
I. EMISSION UNI	IT(S):							
	S2.XXX/	Location UTM NAD 83 (m)		I	1	1	Year	
System 67	PF1.XXX Description SYS67 MERCURY RETORTS 1 - 4	North East 4,536,176 554,526	Manufacturer ENVIROCARE	Model #	Serial #	SCC # 3-03-024-05	Manufactured	
II. CONTROL DE	EVICE(S):							
		<u>Pollutant</u>	Type	Control (%)	Control(s) Manufacturer Factor	's Guarantee Unit	<u>Notes</u>	
Height (ft):	Stack Parameters 85	PM PM10						-
Diameter (ft):	1.0	PM2.5						
Temp (°F): Exit Vel (fps):	190 15.75	SO2 NOX	SO2 Scrubber	98.6%			Manu. Guarantee	
Vol (ACFM): Vol (DSCFM):	742 400	CO VOC						
, , , 	A SLE AND THE DATE OF THE STATE	Pb Hg						
		H2S HAPS						
III. Operating Par		wake of Court XX		· · · · · · · · · · · · · · · · · · ·		1		1
Operating hr/day 24	Hours Hourly 8,760 2.4	oughput/Fuel Usage Annual Unit 21,024.0 ton	Fuel Type	Heat Input (MMBtu) Hourly	<u>Annual</u>	Power O Hourly	Unit	Heat Content
. Lettiggettelv (> 4)	Note: Th	ne Conversion section is used for calcu	ulating to and from the	proughput/fuel usage and heat input u	using heat content values. Se	e below for typical values.		
	Coal (BTU/lb)	Diesel Gasoline (BTU/gal) (BTU/gal) 138,000 114,000	Natural Gas (BTU/scf) 1,020	Propane (BTU/gallon) 91,500			ormula to calculate:	TYPE FORMULA
IV. Emission Limit	t Calculations:	Uncontrolled						
Pollutant	Other Emission Factor Factor Unit	Actual Emission Factor Factor Unit	lb/hr	Emission Limit ton/yr	Reference	1	Notes	•
SO2		57.7381 lb/ton	138.57	606.94				ant-requested limits
	사람이 하는 것으로 보다 지역시 14일 : 10 기기		Formul	a for Uncontrolled Limit (lb/hr):				
	Controlled Factor	Controlled Factor (%Control)	<u>Control</u>	ed Emission Limit	Emission Limi	t (%Control)		
Pollutant SO2	Factor Unit	Factor Unit	lb/hr	ton/yr	lb/hr	ton/yr	Reference	Notes Applicant-requested limits
	<u> </u>	0.8083334 lb/ton			1.94	8.50		rippiicant requested iniits
	<u> </u>	0.8083334 lb/ton	Form	ula for Controlled Limit(lb/hr):	1.94	8.50		Approximate requested minus
Fede	erally Enforceable SIPS			ula for Controlled Limit(lb/hr):		8.50		7 ppnount requested initial
NAC 445B.2203	PM10	State Requirement Formula(s) Where X= Where Y= NA NA	ents: Maximum Alle Y NA				E	Units
Fede NAC 445B.2203 NAC 445B.22047 NAC 445B.22033 NAC 445B.22017	·	State Requireme Formula(s) Where X= Where Y=	ents: Maximum Alle Y	owables (Formulas subject to change	ge with Heat Input Rate)		E 7.37	
NAC 445B.2203 NAC 445B.22047 NAC 445B.22033 NAC 445B.22017	PM10 Sulfur PM10 Opacity Emission Factor	State Requireme Formula(s) Where X= Where Y= NA NA NA NA	ents: Maximum Alle Y NA NA P	Unit Unit Ermitted Emission Limits	where P=	Where E= 4.10 * [2.4] ^ 0.67 Compare to S	7.37	Units
NAC 445B.2203 NAC 445B.22047 NAC 445B.22033	PM10 Sulfur PM10 Opacity	State Requirement Formula(s) Where X= Where Y= NA NA	ents: Maximum Alle Y NA NA	wables (Formulas subject to chang Unit	ge with Heat Input Rate) Where P=	Where E= 4.10 * [2.4] ^ 0.67	7.37	Units
NAC 445B.2203 NAC 445B.22047 NAC 445B.22033 NAC 445B.22017	PM10 Sulfur PM10 Opacity Emission Factor Factor Unit 0.8083334 Ib/ton	State Requirement Formula(s) Where X= Where Y= NA NA NA NA NA NA	P Reference	Unit Unit Ermitted Emission Limits Notes	where P=	Where E= 4.10 * [2.4] ^ 0.67 Compare to S	7.37	Units
NAC 445B.2203 NAC 445B.22047 NAC 445B.22033 NAC 445B.22017 Pollutant SO2 VI. Hazardous Air	PM10 Sulfur PM10 Opacity Emission Factor Factor Unit 0.8083334 lb/ton	State Requirement Formula(s) Where X= Where Y= NA	P Reference	Unit Unit Ermitted Emission Limits Notes Applicant-requested limits Hazardous Air Pollutants	Where P= 2.400 Factor	Where E= 4.10 * [2.4] ^ 0.67 Compare to S Unit	7.37 Source Testing lb/hr	Units ibs/hr ton/yr
NAC 445B.2203 NAC 445B.22047 NAC 445B.22033 NAC 445B.22017 Pollutant	PM10 Sulfur PM10 Opacity Emission Factor Factor Unit 0.8083334 Ib/ton	State Requirement Formula(s) Where X= Where Y= NA NA NA NA NA NA	P Reference	Unit Unit Ermitted Emission Limits Notes Applicant-requested limits	where P=	Where E= 4.10 * [2.4] ^ 0.67 Compare to S Unit	7.37	Units

		Division of Environ Bureau of Air Pollut			Facility Name:	BARRICK G	GOLDSTRIKE		By: PAT MOHN	Date: 5/21/2013
					Project Name:				Air (
	,	POLLUTAN EMISSIONS CALCU				RIL CIRC	CUIT OPTC		7349 XXXX	REVISION TYPE OF AP
FIN:	A0005	Permit Number:			System: E/W Meltin	g Furnaces + EW C	cells, S2.013, S2.014, and S	32.344	XXXX	TYPE OF AP
			I		The state of the s			ı		-
Alt Oners	ting Scenario?	YES/NO NO	Notes						Approved:	Date: 7/21/2013
nii Opera	Revision?		Decrease hourly and a	annual SO2 limits.						
							20 April 20			
I. EMISSION	N UNIT(S):		Location	UTM	1					
			NAD 83						Year	
	S2.XXX/	.	37.41					0.000 #		
System	PF1.XXX	Description E/W MELTING	North	East	Manufacturer	Model #	Serial #	<u>SCC #</u>	Manufactured	
68	SYS68	FURNACES + EW	4,536,191	554,549	POWERTRAK		E915016524611 W877773024611	3-03-024-05		
		CELLS			in the 12 Vertices of the		- W8////3024011			
II. CONTRO	OL DEVICE(S)):			1		Control(s)			1
				Pollutant			Manufacturer'	s Guarantee		
					<u>Type</u>	Control (%)	<u>Factor</u>	<u>Unit</u>	Notes	
Height (ft):	Stack Paran	neters 88	*	PM PM10	BH+SO2 Scrubber BH+SO2 Scrubber				Current Permit Limits Current Permit Limits	-
Diameter (ft):		1.67		PM10 PM2.5	BH+SO2 Scrubber	1 10 10 10 10 10 10 10 10 10 10 10 10 10			Current Permit Limits Current Permit Limits	
Γemp (°F):		117.5		SO2	SO2 Scrubber	98.6%			Manu. Guarantee]
Exit Vel (fps): Vol (ACFM):		10.818		NOX CO				1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		-
Vol (ACFM): Vol (DSCFM)):	10,818 9,100		VOC						1
· · ·		www.ter.Addino/folibeddets/347% 2008/000299/62557	¥	Pb						
				Hg	Carbon Filter				Phase 2 NMCP	-
				H2S HAPS						1
_	ig Parameters: ng Hours		nroughput/Fuel Usage] 	leat Input (MMBtu)		Pow	er Output	Heat Content
hr/day	hr/yr	Hourly	Annual	<u>Unit</u>	Fuel Type	Hourly	Annual	<u>Hourly</u>	<u>Unit</u>	2200 0000000
24	8,760	1.2	10,512.0	ton -		Ext 77 - 12 - 1 400 200 000 000 000 000 000 000 000 000				100 100 100
									200 300 300 A	3
	la de la composición	Note	: The Conversion section	02555	lating to and from throughput/fu	el usage and heat inpu	ut using heat content values.	See below for typical val	Language Communication of the	
.M., 1, 1, 81	kan era er T	Coal	Diesel	on is used for calcu Gasoline	lating to and from throughput/fud Natural Gas	Propane	ut using heat content values.	See below for typical val	ues.	
	Default	Coal (BTU/lb)	Diesel (BTU/gal)	on is used for calcu Gasoline (BTU/gal)	Natural Gas (BTU/scf)	Propane (BTU/gallon)	ut using heat content values.			FORMUL A
	Default	Coal	Diesel	on is used for calcu Gasoline	Natural Gas	Propane	ut using heat content values.		lues. ormula to calculate: TYPE	FORMULA
IV. Emission	Default Limit Calcula	Coal (BTU/lb) 13,000	Diesel (BTU/gal) 140,000	on is used for calcu Gasoline (BTU/gal) 114,000	Natural Gas (BTU/scf)	Propane (BTU/gallon)	at using heat content values.			FORMULA
IV. Emission	Limit Calcula	Coal (BTU/lb) 13,000	Diesel (BTU/gal) 140,000	on is used for calcu Gasoline (BTU/gal) 114,000	Natural Gas (BTU/scf)	Propane (BTU/gallon) 90,500	ut using heat content values.			FORMULA
Pollutant	Limit Calcula	Coal (BTU/lb) 13,000	Diesel (BTU/gal) 140,000 Actual Emissi Factor	on is used for calcu Gasoline (BTU/gal) 114,000 Uncontrolled ion Factor Unit	Natural Gas (BTU/scf) 1,020	Propane (BTU/gallon) 90,500 mit ton/yr	Reference			FORMULA
Pollutant PM	Limit Calcula	Coal (BTU/lb) 13,000 tions:	Diesel (BTU/gal) 140,000 Actual Emissi Factor 2.333	on is used for calcu Gasoline (BTU/gal) 114,000 Uncontrolled ion Factor Unit Ib/ton	Natural Gas (BTU/scf) 1,020 Emission Lin lb/hr 2.80	Propane (BTU/gallon) 90,500 mit ton/yr 3.06	Reference Current Permit Limits.		ormula to calculate: TYPE	FORMULA
Pollutant	Limit Calcula	Coal (BTU/lb) 13,000 tions:	Diesel (BTU/gal) 140,000 Actual Emissi Factor	on is used for calcu Gasoline (BTU/gal) 114,000 Uncontrolled ion Factor Unit	Natural Gas (BTU/scf) 1,020 Emission Lin lb/hr 2.80 2.80	Propane (BTU/gallon) 90,500 mit ton/yr 3.06 3.06	Reference		ormula to calculate: TYPE	FORMULA
Pollutant PM PM10	Limit Calcula	Coal (BTU/lb) 13,000 tions:	Diesel (BTU/gal) 140,000 Actual Emissi Factor 2.333 2.333	on is used for calcu Gasoline (BTU/gal) 114,000 Uncontrolled ion Factor Unit Ib/ton Ib/ton	Natural Gas (BTU/scf) 1,020 Emission Lin lb/hr 2.80	Propane (BTU/gallon) 90,500 mit ton/yr 3.06 3.06 3.06	Reference Current Permit Limits. Current Permit Limits.		ormula to calculate: TYPE	FORMULA
Pollutant PM PM10 PM2.5	Limit Calcula	Coal (BTU/lb) 13,000 tions:	Diesel (BTU/gal) 140,000 Actual Emissi Factor 2.333 2.333 2.333	on is used for calculation (BTU/gal) 114,000 Uncontrolled ion Factor Unit lb/ton lb/ton lb/ton	Natural Gas (BTU/scf) 1,020 Emission Lin 1b/hr 2.80 2.80 2.80 12.14	Propane (BTU/gallon) 90,500 mit ton/yr 3.06 3.06 3.06 53.19	Reference Current Permit Limits. Current Permit Limits. Current Permit Limits.		ormula to calculate: TYPE	FORMULA
Pollutant PM PM10 PM2.5	Limit Calcula	Coal (BTU/lb) 13,000 tions:	Diesel (BTU/gal) 140,000 Actual Emissi Factor 2.333 2.333 2.333	on is used for calculation (BTU/gal) 114,000 Uncontrolled ion Factor Unit lb/ton lb/ton lb/ton	Natural Gas (BTU/scf) 1,020 Emission Lin 1b/hr 2.80 2.80 2.80 12.14 Formula for Uncont	Propane (BTU/gallon) 90,500 mit ton/yr 3.06 3.06 3.06 53.19	Reference Current Permit Limits. Current Permit Limits. Current Permit Limits.		ormula to calculate: TYPE	FORMULA
Pollutant PM PM10 PM2.5	Control Calcula Other H Factor	Coal (BTU/lb) 13,000 tions: Emission Factor Unit	Diesel (BTU/gal) 140,000 Actual Emissi Factor 2.333 2.333 2.333 10.11907	On is used for calculation of the controlled	Natural Gas (BTU/scf) 1,020 Emission Lin lb/hr 2.80 2.80 2.80 12.14 Formula for Uncont	Propane (BTU/gallon) 90,500 mit ton/yr 3.06 3.06 3.06 53.19 trolled Limit (lb/hr):	Reference Current Permit Limits. Current Permit Limits. Current Permit Limits. Apply 98.6% control.	If used a fo	ormula to calculate: TYPE	FORMULA
Pollutant PM PM10 PM2.5 SO2	Other I Factor	Coal (BTU/lb) 13,000 tions:	Diesel (BTU/gal) 140,000 Actual Emissi Factor 2.333 2.333 2.333 10.11907 Controlled Facto	On is used for calculation of the control of the co	Natural Gas (BTU/scf) 1,020 Emission Lin lb/hr 2.80 2.80 2.80 12.14 Formula for Uncont	Propane (BTU/gallon) 90,500 mit ton/yr 3.06 3.06 3.06 53.19 trolled Limit (lb/hr):	Reference Current Permit Limits. Current Permit Limits. Current Permit Limits. Apply 98.6% control. Emission Limit	If used a fo	ormula to calculate: TYPE	FORMULA
Pollutant PM PM10 PM2.5 SO2 Pollutant PM	Control Calcula Other H Factor	Coal (BTU/lb) 13,000 tions: Emission Factor Unit	Diesel (BTU/gal) 140,000 Actual Emissi Factor 2.333 2.333 2.333 10.11907 Controlled Facto Factor 2.333	On is used for calculation of the controlled	Natural Gas (BTU/scf) 1,020 Emission Lin lb/hr 2.80 2.80 2.80 12.14 Formula for Uncont	Propane (BTU/gallon) 90,500 mit ton/yr 3.06 3.06 3.06 53.19 trolled Limit (lb/hr):	Reference Current Permit Limits. Current Permit Limits. Current Permit Limits. Apply 98.6% control. Emission Limit lb/hr 2.80	If used a for (%Control) ton/yr 3.06	Notes Reference Current Permit Limits.	
Pollutant PM PM10 PM2.5 SO2 Pollutant PM PM10	Other I Factor	Coal (BTU/lb) 13,000 tions: Emission Factor Unit	Diesel (BTU/gal) 140,000 Actual Emissi Factor 2.333 2.333 10.11907 Controlled Facto Factor 2.333 2.333	on is used for calculation of Gasoline (BTU/gal) 114,000 Uncontrolled ion Factor Unit lb/ton lb/ton lb/ton lb/ton lb/ton lb/ton lb/ton lb/ton lb/ton Unit lb/ton	Natural Gas (BTU/scf) 1,020 Emission Lin lb/hr 2.80 2.80 2.80 12.14 Formula for Uncont	Propane (BTU/gallon) 90,500 mit ton/yr 3.06 3.06 3.06 53.19 trolled Limit (lb/hr):	Reference Current Permit Limits. Current Permit Limits. Current Permit Limits. Apply 98.6% control. Emission Limit lb/hr 2.80 2.80	If used a for the second of th	Notes Reference Current Permit Limits. Current Limits.	
Pollutant PM PM10 PM2.5 SO2 Pollutant PM PM10 PM2.5	Other I Factor	Coal (BTU/lb) 13,000 tions: Emission Factor Unit	Diesel (BTU/gal) 140,000 Actual Emissi Factor 2.333 2.333 2.333 10.11907 Controlled Facto Factor 2.333	on is used for calculation of Gasoline (BTU/gal) 114,000 Uncontrolled ion Factor Unit lb/ton	Natural Gas (BTU/scf) 1,020 Emission Lin lb/hr 2.80 2.80 2.80 12.14 Formula for Uncont	Propane (BTU/gallon) 90,500 mit ton/yr 3.06 3.06 3.06 53.19 trolled Limit (lb/hr):	Reference Current Permit Limits. Current Permit Limits. Current Permit Limits. Apply 98.6% control. Emission Limit lb/hr 2.80	If used a for (%Control) ton/yr 3.06	Notes Reference Current Permit Limits. Current Permit Limits. Current Permit Limits.	
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Pollutant PM PM10 PM2.5 SO2 Pollutant PM PM10 PM2.5 SO2	Cont Factor	Coal (BTU/lb) 13,000 tions: Emission Factor Unit rolled Factor Unit	Diesel (BTU/gal) 140,000 Actual Emissi Factor 2.333 2.333 2.333 10.11907 Controlled Facto Factor 2.333 2.333 2.333 2.333 2.333 0.1417	on is used for calcular Gasoline (BTU/gal) 114,000 Uncontrolled ion Factor Unit lb/ton lb/to	Natural Gas (BTU/scf) 1,020 Emission Lin lb/hr 2.80 2.80 2.80 12.14 Formula for Uncont Controlled Emission Lin lb/hr Formula for Controlled Permitted Em	Propane (BTU/gallon) 90,500 mit ton/yr 3.06 3.06 3.06 53.19 trolled Limit (lb/hr): mit ton/yr	Reference Current Permit Limits. Current Permit Limits. Current Permit Limits. Apply 98.6% control. Emission Limit lb/hr 2.80 2.80 2.80 0.17	If used a for the compare to So.	Reference Current Permit Limits. Current Permit Limits. Current Permit Limits. Apply 98.6% control.	Notes
Pollutant PM PM10 PM2.5 SO2 Pollutant PM PM10 PM2.5	Cont Factor	Coal (BTU/lb) 13,000 tions: Emission Factor Unit rolled Factor Unit	Diesel (BTU/gal) 140,000 Actual Emissi Factor 2.333 2.333 2.333 10.11907 Controlled Facto Factor 2.333 2.333 2.333 2.333	on is used for calculation of Gasoline (BTU/gal) 114,000 Uncontrolled ion Factor Unit lb/ton	Natural Gas (BTU/scf) 1,020 Emission Lin lb/hr 2.80 2.80 2.80 12.14 Formula for Uncont Controlled Emission Lin lb/hr Formula for Control	Propane (BTU/gallon) 90,500	Reference Current Permit Limits. Current Permit Limits. Current Permit Limits. Apply 98.6% control. Emission Limit lb/hr 2.80 2.80 2.80	If used a for the control of the con	Reference Current Permit Limits. Current Permit Limits. Current Permit Limits. Apply 98.6% control.	
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Pollutant PM PM10 PM2.5 SO2 Pollutant PM PM10 PM2.5 SO2 Pollutant PM PM10 PM2.5 SO2	Cont Factor Emi Factor 2.333 2.333 2.333	Coal (BTU/lb) 13,000 tions: Emission Factor Unit ssion Factor Unit b/ton b/ton b/ton b/ton	Diesel (BTU/gal) 140,000 Actual Emissi Factor 2.333 2.333 10.11907 Controlled Facto Factor 2.333 2.333 0.1417	on is used for calcular Gasoline (BTU/gal) 114,000 Uncontrolled ion Factor Unit lb/ton lb/to	Natural Gas (BTU/scf) 1,020 Emission Lin lb/hr 2.80 2.80 2.80 12.14 Formula for Uncont Controlled Emission Lin lb/hr Formula for Controlled Controlled Emission Lin lb/hr Formula for Controlled Controlled Emission Lin lb/hr Formula for Controlled Emission Lin lb/hr	Propane (BTU/gallon) 90,500 mit ton/yr 3.06 3.06 3.06 53.19 trolled Limit (lb/hr): mit ton/yr	Reference Current Permit Limits. Current Permit Limits. Current Permit Limits. Apply 98.6% control. Emission Limit lb/hr 2.80 2.80 2.80 0.17	If used a for ton/yr 3.06 3.06 3.06 0.74 Compare to So Unit	Reference Current Permit Limits. Current Permit Limits. Current Permit Limits. Apply 98.6% control.	Notes
Pollutant PM PM10 PM2.5 SO2 Pollutant PM PM10 PM2.5 SO2 Pollutant PM PM10 PM2.5 SO2	Cont Factor Emi Factor 2.333 2.333 9.1417	Coal (BTU/lb) 13,000 tions: Emission Factor Unit ssion Factor Unit b/ton b/ton b/ton b/ton	Diesel (BTU/gal) 140,000 Actual Emissi Factor 2.333 2.333 10.11907 Controlled Facto Factor 2.333 2.333 0.1417	on is used for calcular Gasoline (BTU/gal) 114,000 Uncontrolled ion Factor Unit lb/ton lb/to	Natural Gas (BTU/scf) 1,020 Emission Lin lb/hr 2.80 2.80 2.80 12.14 Formula for Uncont Controlled Emission Lin lb/hr Formula for Controlled Controlled Emission Lin lb/hr Formula for Controlled Controlled Emission Lin lb/hr Formula for Controlled Emission Lin lb/hr	Propane (BTU/gallon) 90,500 mit ton/yr 3.06 3.06 3.06 53.19 trolled Limit (lb/hr): mit ton/yr Notes	Reference Current Permit Limits. Current Permit Limits. Current Permit Limits. Apply 98.6% control. Emission Limit lb/hr 2.80 2.80 2.80 0.17	If used a for ton/yr 3.06 3.06 3.06 0.74 Compare to So Unit	Reference Current Permit Limits. Current Permit Limits. Current Permit Limits. Apply 98.6% control.	Notes
Pollutant PM PM10 PM2.5 SO2 Pollutant PM PM10 PM2.5 SO2 Pollutant PM PM10 PM2.5 SO2	Cont Factor Emi Factor 2.333 2.333 2.333 0.1417	Coal (BTU/lb) 13,000 tions: Emission Factor Unit Ssion Factor Unit Ib/ton Ib/ton Ib/ton Ib/ton	Diesel (BTU/gal) 140,000 Actual Emissi Factor 2.333 2.333 2.333 2.333 2.333 2.333 2.333 2.333 2.333 2.333 2.334 2.380 2.80 2.80 0.17	on is used for calcular Gasoline (BTU/gal) 114,000 Uncontrolled Gasoline (BTU/gal) 114,000 Uncontrolled Gasoline Gasoline (BTU/gal) 114,000 Unit Ib/ton I	Natural Gas (BTU/scf) 1,020 Emission Lin lb/hr 2.80 2.80 2.80 12.14 Formula for Uncont Controlled Emission Lin lb/hr Formula for Control Permitted Em Reference Current Permit Limits. Current Permit Limits. Current Permit Limits. Apply 98.6% control. Hazardous A	Propane (BTU/gallon) 90,500 mit ton/yr 3.06 3.06 3.06 53.19 trolled Limit (lb/hr): mit ton/yr Notes	Reference Current Permit Limits. Current Permit Limits. Current Permit Limits. Apply 98.6% control. Emission Limit lb/hr 2.80 2.80 2.80 0.17	(%Control) ton/yr 3.06 3.06 3.06 0.74 Compare to St	Reference Current Permit Limits. Current Permit Limits. Current Permit Limits. Apply 98.6% control.	Notes ton/yr
Pollutant PM PM10 PM2.5 SO2 Pollutant PM PM10 PM2.5 SO2 Pollutant PM PM10 PM2.5 SO2	Cont Factor Emi Factor 2.333 2.333 2.333 0.1417	Coal (BTU/lb) 13,000 tions: Emission Factor Unit ssion Factor Unit b/ton b/ton b/ton b/ton	Diesel (BTU/gal) 140,000 Actual Emissi Factor 2.333 2.333 10.11907 Controlled Facto Factor 2.333 2.333 0.1417	on is used for calcular Gasoline (BTU/gal) 114,000 Uncontrolled Gasoline (BTU/gal) 114,000 Uncontrolled Gasoline Gasoline (BTU/gal) 114,000 Unit Ib/ton I	Natural Gas (BTU/scf) 1,020 Emission Lin 1b/hr 2.80 2.80 2.80 12.14 Formula for Uncont Controlled Emission Lin 1b/hr Formula for Control Permitted Em Reference Current Permit Limits. Current Permit Limits. Current Permit Limits. Apply 98.6% control.	Propane (BTU/gallon) 90,500 mit ton/yr 3.06 3.06 3.06 53.19 trolled Limit (lb/hr): mit ton/yr Notes	Reference Current Permit Limits. Current Permit Limits. Current Permit Limits. Apply 98.6% control. Emission Limit lb/hr 2.80 2.80 2.80 0.17	(%Control) ton/yr 3.06 3.06 3.06 0.74 Compare to St	Reference Current Permit Limits. Current Permit Limits. Current Permit Limits. Apply 98.6% control.	Notes ton/yr
Pollutant PM PM10 PM2.5 SO2 Pollutant PM PM10 PM2.5 SO2 Pollutant PM PM10 PM2.5 SO2 Pollutant PM PM10 PM2.5 SO2	Cont Factor Emi Factor 2.333 2.333 2.333 0.1417	Coal (BTU/lb) 13,000 tions: Emission Factor Unit Ssion Factor Unit Ib/ton Ib/ton Ib/ton Ib/ton Ib/ton	Diesel (BTU/gal) 140,000 Actual Emissi Factor 2.333 2.333 10.11907 Controlled Factor Factor 2.333 2.333 2.333 2.333 2.333 2.331	on is used for calculation of Gasoline (BTU/gal) 114,000 Uncontrolled ion Factor Unit lb/ton	Natural Gas (BTU/scf) 1,020 Emission Lin lb/hr 2.80 2.80 2.80 12.14 Formula for Uncont Controlled Emission Lin lb/hr Formula for Control Permitted Em Reference Current Permit Limits. Current Permit Limits. Current Permit Limits. Apply 98.6% control. Hazardous A Uncontrollee	Propane (BTU/gallon) 90,500 mit ton/yr 3.06 3.06 3.06 53.19 trolled Limit (lb/hr): mit ton/yr Notes	Reference Current Permit Limits. Current Permit Limits. Current Permit Limits. Apply 98.6% control. Emission Limit lb/hr 2.80 2.80 2.80 0.17 Factor	(%Control) ton/yr 3.06 3.06 0.74 Compare to So Unit	Reference Current Permit Limits. Current Permit Limits. Current Permit Limits. Apply 98.6% control.	Notes

Nev	vada Division	of Environmenta	l Protection		Facility Name:		***************************************	-	Ву:	Date:
	Bureau of	Air Pollution Co	ntrol		Project Name:	BARRICK GOLDSTRIKE			PAT MOHN Air	5/21/2013 - Case:
		OLLUTANTS NS CALCULATIO	ONS		System:	RIL CIRCUIT OPTC			7349 XXXX	REVISION TYPE OF AP
FIN:	A0005	Permit Number:	AP1041-2805			MMBTU, TKI BOILER (NATURA)	L GAS)		xxxx	TYPE OF AP
Alt Opera	ating Scenario?	YES/NO NO	Notes	FAC 502					Approved:	Date: 7/26/2013
	Revision?		Add new 12 MMBtu T	KI Boiler						<u> </u>
I. EMISSION UNIT(S):			1	LTM		Taging a sample of the first of the same and the same		a		
	1	ı	Location NAD 83			ŀ	1		Year	
System	S2.XXX/ PF1.XXX	Description	North	East	Manufacturer	Model #	Serial #	SCC#	Manufactured	
141A	\$2.361NG	TKI BOILER 12 MMBTU	4,536,106	554,928	and the second s		<u> </u>	1-01-006-02		
					and the same of th					
II. CONTROL DEVICE(S):						Cor	ntrol(s)			
	_			Pollutant	Туре	Control (%)	Manufacturer Factor	's Guarantee Unit	Notes	
Height (ft)	Parameters	25	2017 2017	PM PM10						
Diameter (ft): Temp (°F):		1.67 400		PM2.5 SO2				1		
Exit Vel (fps): Vol (ACFM):		61.1 8,000		NOX CO						
Vol (DSCFM):	Ī	2,900	pre-	VOC Pb						
				Hg H2S						
				HAPS				-		
II. Operating Parameters: Operating Hours			Throughput/Fuel Usage	***************************************	1	Heat Input (MMBtu)			Power Output	Heat Content
hr/day 24	<u>hr/yr</u> 8,760	<u>Hourly</u> 11,760	Annual 103,017,600	<u>Unit</u> scf	Fuel Type Natural Gas	Hourly 12.00	Annual 105,077,95	Hourly	<u>Vnit</u>	(BTU/scf) 1,020
		11,700						The for trainer's "	nes	*,020
	ļ	Coal	Diesel	Gasoline	Natural Gas	ut/fuel usage and heat input using heat co	ment values. See belo	w tor typical valu	rus.	
	Default	(BTU/lb) 13,000	(BTU/gal) 140,000	(BTU/gal) 114,000	(BTU/scf) 1,020	(BTU/gallon) 90,500			If used a formula to calculate: T	YPE FORMULA
V. Emission Limit Calculations:	: :						-T			
n_u.		Emission Factor	Actual Emission		Emi	ission Limit	n.c		lv	
Pollutant PM	Factor	Unit	Factor 0,011	Unit lb/mmbtu	lb/hr 0.13	ton/yr 0.58	Reference Applicant-requested			4 w/ safety factor.
PM10 PM2.5			0.011 0.011	lb/mmbtu lb/mmbtu	0.13 0.13	0,58 0,58	Applicant-requested Applicant-requested	limits.		4 w/ safety factor. 4 w/ safety factor.
SO2 NOX			0.017	lb/mmbtu lb/mmbtu	0.20 1.08	0.89 4.73	Applicant-requested Applicant-requested	limits.		4 w/ safety factor.
CO VOC			0.164 0.026	lb/mmbtu lb/mmbtu	1.97 0.31	8.62 1.37	Applicant-requested Applicant-requested	limits.		4 w/ safety factor. 4 w/ safety factor.
						controlled Limit (lb/hr):	Tripping 194			
								<u></u>		
		rolled Factor	Controlled Factor			ission Limit	Emission Limit			
Pollutant PM	Factor	Unit	Factor 0.011	Unit lb/mmbtu	lb/hr	ton/yr	lb/hr 0.13	ton/yr 0.58	Reference Applicant-requested limits.	Notes AP-42 Sec. 1.4 w/ safety factor.
PM10 PM2.5			0.011	lb/mmbtu lb/mmbtu			0.13	0.58 0.58	Applicant-requested limits. Applicant-requested limits.	AP-42 Sec. 1.4 w/ safety factor. AP-42 Sec. 1.4 w/ safety factor.
SO2 NOX			0.017 0.090	lb/mmbtu lb/mmbtu			0.20 1.08	0.89 4.73	Applicant-requested limits. Applicant-requested limits.	AP-42 Sec. 1.4 w/ safety factor. Manu. Data
CO VOC			0.164 0.026	lb/mmbtu lb/mmbtu			1.97 0.31	8.62 1.37	Applicant-requested limits. Applicant-requested limits.	AP-42 Sec. 1.4 w/ safety factor. AP-42 Sec. 1.4 w/ safety factor.
					Formula for C	Controlled Limit(lb/hr):		- 		
· .					Permitted	d Emission Limits		<u> </u>	<u> </u>	
Pollutant	Emis Factor	ssion Factor Unit	lb/hr	ton/yr	Reference	Notes	Factor	Unit	Compare to Source Testing lb/hr	ton/yr
PM PM10	0.011 0.011	lb/mmbtu lb/mmbtu	0.13 0.13	0.58 0.58	Applicant-requested limits.	AP-42 Sec. 1.4 w/ safety factor.		1	<u></u>	
PM2.5	0.011	lb/mmbtu	0.13	0.58	Applicant-requested limits. Applicant-requested limits.	AP-42 Sec. 1.4 w/ safety factor. AP-42 Sec. 1.4 w/ safety factor.				
SO2 NOX	0.017	lb/mmbtu lb/mmbtu	0.20 1.08	0.89 4.73	Applicant-requested limits. Applicant-requested limits.	AP-42 Sec. 1.4 w/ safety factor. Manu. Data				
CO VOC	0.164 0.026	lb/mmbtu lb/mmbtu	1.97 0.31	8.62 1.37	Applicant-requested limits. Applicant-requested limits.	AP-42 Sec. 1.4 w/ safety factor. AP-42 Sec. 1.4 w/ safety factor.				
7. Green House Gases	Factor	Unit	lb/hr	ton/yr	GWP Multiplier	GWP lb/hr	GWP ton/yr	Reference	Using Sou GWP lb/hr	urce Testing GWP ton/yr
CO2 CH4	117.00 0.0022	lb/MMBtu lb/MMBtu	1,404.0	6,147.1 0.1	1 21	1,404.0 0.6	6,147.1			
N2O	0,0006	lb/MMBtu	0.0	0.0	310 TOTAL CO2e:	2.2 1,407	9.8 6,159	0		
						-,,	-7***	Ť		
I. Hazardous Air Pollutants:					LIana J -	ous Air Pollutants		***		
HAP Pollutant	Un	controlled	Controll	ed		ontrolled	Contro		Removal Factor	Calculation Reference
	Factor	Unit	Factor	Unit	Emission (lb/hr)	Emission (ton/yr)	Emission (lb/hr)	Emission (ton/yr)	IXABOVAL PAGUN	1919 M. 11
OTALS: 2-Methylnaphthalene	2.35E-08	lb/MMBtu	2.35E-08	lb/MMBtu	0.000999146 2.82E-07	0.004 1.24E-06	0.000999146 2.82E-07	0.004 1.24E-06		AP42 Table 1.4-3 AP42 Table 1.4-3
3-Methylchloranthrene ,12-Dimethylbenz(a)anthracene	1.76E-09 1.57E-08	lb/MMBtu	1.76E-09 1.57E-08	lb/MMBtu lb/MMBtu	2.12E-08 1.88E-07	9.27E-08 8.24E-07	2.12E-08 1.88E-07	9.27E-08 8.24E-07		AP42 Table 1.4-3 AP42 Table 1.4-3
Acenaphthene	1.76E-08	lb/MMBtu	1.57E-08 1.76E-09	lb/MMBtu	1.88E-07 2.12E-08	9.27E-08	1.88E-07 2.12E-08	9.27E-08		AP42 Table 1.4-3
Acenaphthylene Anthracene	1.76E-09 2.35E-09	lb/MMBtu lb/MMBtu	1.76E-09 2.35E-09	lb/MMBtu lb/MMBtu	2.12E-08 2.82E-08	9.27E-08 1.24E-07	2.12E-08 2.82E-08	9.27E-08 1.24E-07		AP42 Table 1.4-3 AP42 Table 1.4-3
Benz(a)anthracene Benzene	1.76E-09 2.06E-06	lb/MMBtu lb/MMBtu	1.76E-09 2.06E-06	ib/MMBtu ib/MMBtu	2.12E-08 2.47E-05	9.27E-08 1.08E-04	2.12E-08 2.47E-05	9.27E-08 1.08E-04	-	AP42 Table 1.4-3 AP42 Table 1.4-3
Benzo(a)pyrene	1.18E-09	lb/MMBtu	1.18E-09	lb/MMBtu	1.41E-08	6.18E-08	1.41E-08	6.18E-08		AP42 Table 1.4-3
Benzo(g,h,i)perylene	1.76E-09 1.76E-09	lb/MMBtu lb/MMBtu	1.76E-09 1.76E-09	lb/MMBtu lb/MMBtu	2.12E-08 2.12E-08	9.27E-08 9.27E-08	2.12E-08 2.12E-08	9.27E-08 9.27E-08		AP42 Table 1.4-3 AP42 Table 1.4-3
Benzo(k)fluoranthene Chrysene	2.06E-06 1.76E-09	lb/MMBtu lb/MMBtu	2.06E-06 1.76E-09	lb/MMBtu lb/MMBtu	2.47E-05 2.12E-08	1.08E-04 9.27E-08	2.47E-05 2.12E-08	1.08E-04 9.27E-08		AP42 Table 1.4-3 AP42 Table 1.4-3
Dibenzo(a,h)anthracene Dichlorobenzene	1.18E-09 1.18E-06	lb/MMBtu lb/MMBtu	1.18E-09 1.18E-06	lb/MMBtu lb/MMBtu	1.41E-08 1.41E-05	6.18E-08 6.18E-05	1.41E-08 1.41E-05	6.18E-08 6.18E-05		AP42 Table 1.4-3 AP42 Table 1.4-3
Fluoranthene Fluorene	2.94E-09 2.75E-09	lb/MMBtu lb/MMBtu	2.94E-09 2.75E-09	lb/MMBtu lb/MMBtu	3.53E-08 3.29E-08	1.55E-07 1.44E-07	3.53E-08 3.29E-08	1.55E-07 1.44E-07		AP42 Table 1.4-3 AP42 Table 1.4-3
Formaldehyde	7,35E-05	lb/MMBtu	7.35E-05	lb/MMBtu	8.82E-04	3.86E-03	8.82E-04	3.86E-03		AP42 Table 1.4-3
Hexane Indeno(1,2,3-cd)pyrene	4.22E-07 1.76E-09	lb/MMBtu	4.22E-07 1.76E-09	lb/MMBtu	5.06E-06	2.22E-05	5.06E-06	2.22E-05		PERF 1997, AP42 poor factor ratin
Napthalene	5.98E-07	lb/MMBtu	5.98E-07	ib/MMBtu ib/MMBtu	2.12E-08 7.18E-06	9.27E-08 3.14E-05	2.12E-08 7.18E-06	9.27E-08 3.14E-05	-	AP42 Table 1.4-3 AP42 Table 1.4-3
Phenanathrene Pyrene	1.67E-08 4.90E-09	lb/MMBtu lb/MMBtu	1.67E-08 4.90E-09	lb/MMBtu lb/MMBtu	2.00E-07 5.88E-08	8.76E-07 2.58E-07	2.00E-07 5.88E-08	8.76E-07 2.58E-07		AP42 Table 1.4-3 AP42 Table 1.4-3
Toluene	3,33E-06	lb/MMBtu	3.33E-06	lb/MMBtu	4.00E-05	1.75E-04	4.00E-05	1.75E-04		AP42 Table 1.4-3

		Division of Enviro Bureau of Air Pollu	nmental Protection tion Control		Facility Name:	BARRICK GOLDSTRIKE			By: PAT MOHN	Date: 5/21/2013
		POLLUTA			Project Name:	RIL CIRCUIT OPTC			7349	ase: REVISION
FIN:	A0005	EMISSIONS CALC Permit Number:			System:	12 MMBTU TKI BOILER (PROPANE)			XXXX XXXX	TYPE OF AP TYPE OF AP
						12 MINIDIO INI BOILER (PROPANE)				
Alt Operati	ing Scenario?	YES/NO YES	Notes Alternative fuel is p	ropane					Approved:	Date: 7/26/20/3
	Revision?	YES	Add 12 MMBtu TK	I Boiler w/ability to c	combust propane. Some permit limits slightly different	because of rounding errors by the applicant.				
EMISSION	UNIT(S):		Location	on UTM			A EMPORISMENT OF A CONTRACT OF A STATE OF			
	S2.XXX/	I.		83 (m)		1	1		Year	
System	PF1.XXX	Description	North	East	Manufacturer	Model #	Serial #	SCC#	Manufactured	
141B	S2.361P	TKI BOILER 12 MMBTU (PROPANE)	4,536,106	554,928				1-02-010-02		
1466	Province V	MMBTU (PROPANE)						And the second s	70 20 20 20	
CONTROL	L DEVICE(S	٠								
CONTRO	L DEVICE(S) .				2	Control(s)		1	1
				Pollutant	Туре	Control (%)	Manufactur Factor	rer's Guarantee Unit	Notes	
ight (ft):	Stack Paran	neters 25	£	PM PM10	The state of the s					·
meter (ft): np (°F):		1.67		PM2.5	144					
t Vel (fps):		61.1	<u></u>	SO2 NOX						-
(ACFM): (DSCFM):		8,000 2,900	4	CO VOC			8			
		manufix Could and the William of the	w.	Pb						
				Hg H2S						-
				HAPS						7
Operating Operating	g Parameters:		hroughput/Fuel Usage			H(AMPc)			P O	1
hr/day	hr/yr	<u>Hourly</u>	Annual	<u>Unit</u>	Fuel Type	Heat Input (MMBtu) Hourly	Annual	Hourly	Power Output Unit	Heat Content (BTU/gallon)
24	8,760	131.0	1,147,560	gal	Propane	12.0	105,002			91,500
		Coal	Diesel	Gasoline	Note: The Conversion section is used for calculating	g to and from throughput/fuel usage and heat inpu Propane	ut using heat content values.	See below for typical valu	ics.	
		(BTU/lb)	(BTU/gal)	(BTU/gal)	(BTU/scf)	(BTU/gallon)				
	Default	13,000	140,000	114,000	1,020	91,500	<u> </u>		If used a formula to calculate: TYPE F	ORMULA
Emission I	Limit Calcula	tions:			Uncontrolled	***************************************	T			***************************************
Pollutant	Other I Factor	Emission Factor Unit	Actual Emi	ssion Factor Unit	Emission lb/hr	Limit ton/yr	Reference		Notes	
PM	- 177		1,010	lb/1000 gallon	0.13	0.58	AP-42, Sec. 1.5 w/s.f. (ap		s.f. = safet	y factor
PM10 PM2.5			1.010 1.010	lb/1000 gallon lb/1000 gallon	0.13 0.13	0.58 0.58	AP-42, Sec. 1.5 w/s.f. (ap AP-42, Sec. 1.5 w/s.f. (ap			
SO2 NOX			1.550 8,240	lb/1000 gallon lb/1000 gallon	0.20 1.08	0.89 4.73	AP-42, Sec. 1.5, SO2 = 0 Manu. Data		S = 15.5 gr/100 cu.ft	. gas (185 ppmw)
co			15.010	lb/1000 gallon	1.97	8,61	AP-42, Sec. 1.5 w/ s.f. (a)		-	
voc [2.396	lb/1000 gallon	0.31	1.37	AP-42, Sec. 1.5 w/s.f. (ap	pplicant-requested)		· · · · · · · · · · · · · · · · · · ·
						Formula for Uncontrolled Limit (lb/hr):				
	Cont	rolled Factor	Controlled Fac	ton (9/ Cont1)	Controlled	T - 14		: (4/6 1)		
Pollutant	Factor	Unit	Factor	Unit	Emission lb/hr	Limit ton/yr	lb/hr	mit (%Control) ton/yr	Reference	Notes
PM PM10			1.01	lb/1000 gallon lb/1000 gallon			0.13 0.13	0.58 0.58	AP-42, Sec. 1.5 w/ s.f. (applicant-requested) AP-42, Sec. 1.5 w/ s.f. (applicant-requested)	s.f. = safety factor
PM2.5			1.01	lb/1000 gallon			0.13	0.58	AP-42, Sec. 1.5 w/ s.f. (applicant-requested)	
SO2 NOX			1.55 8.24	lb/1000 gallon lb/1000 gallon		0.00-27/8880/888040-20-11180-2-0	0.20 1.08	0.89 4.73	AP-42, Sec. 1.5, SO2 = 0.10*S Manu. Data	S = 15.5 gr/100 cu.ft. gas (185 ppmw
co voc	-		15.010. 2.396	lb/1000 gallon			1.97	8.61	AP-42, Sec. 1.5 w/ s.f. (applicant-requested)	
, oc [<u> </u>		7.330	lb/1000 gallon			0.31	1,37	AP-42, Sec. 1.5 w/s.f. (applicant-requested)	
1				e e e e e e e e e e e e e e e e e e e		Formula for Controlled Limit(lb/hr):	ud fyd <u>180au 1</u> 9			
	Emi	ssion Factor				Permitted Emission Limits			Compare to Source Testing	
Pollutant PM	Factor 1.010	Unit lb/1000 gallon	lb/hr 0.13	ton/yr	Reference	Notes	Factor	Unit	lb/hr	ton/yr
PM10	1.010	lb/1000 gallon	0.13	0.58 0.58	AP-42, Sec. 1.5 w/ s.f. (applicant-requested) AP-42, Sec. 1.5 w/ s.f. (applicant-requested)	s.f. = safety factor				
PM2.5 SO2	1.010	lb/1000 gallon lb/1000 gallon	0.13 0.20	0.58 0.89	AP-42, Sec. 1.5 w/ s.f. (applicant-requested) AP-42, Sec. 1.5, SO2 = 0.10*S	S = 15.5 gr/100 cu.ft. gas (185 ppmw)				
NOX	8.240	lb/1000 gallon	1.08	4.73	Manu, Data					
со	15.010	lb/1000 gallon	1.97	8.62	AP-42, Sec. 1.5 w/ s.f. (applicant-requested)	Permitted annual limit higher than cale'd due to rounding error.		1.1.1.5.		
voc	2.396	lb/1000 gallon	0.31	1.37	AP-42, Sec. 1.5 w/ s.f. (applicant-requested)					
		***	1			1	<u></u>	1	<u> </u>	
Green Hous	Factor	Unit	lb/hr	ton/yr	GWP Multiplier	GWP lb/hr	GWP ton/yr	Reference	Using Source GWP lb/hr	: Testing GWP ton/ут
CO2 CH4	139.00 0.0070	lb/MMBtu lb/MMBtu	1,666.1 0.1	7,297.6	1 21	1,666.1	7,297.6	7.7		
N20	-0.0013	-lb/MMBta	0.0	0.4	310	1.8	7.7			
					TOTAL CO2e:	1,673	7,326	0		
nazardous	s Air Pollutan	rs:								
			,							

Nevada Division of Environmental Protection

Nev	vada Division o	f Environmental Pr	otection		Facility Name:				Ву:	Date:
	Bureau of A	Air Pollution Contro	ol		Project Name:	BARRICK GOLDSTRIK	E		PAT MOHN Air Case:	5/21/2013
		LLUTANTS S CALCULATIONS	S:		System:	RIL CIRCUIT OPTC			7349 XXXX	REVISION TYPE OF AP
FIN:	A0005	Permit Number:				EN HEATER (NATURA	AL GAS)		XXXX	TYPE OF AP
		YES/NO	Notes					1	Approved:	Date: 9 /2. /2
Alt Oper	rating Scenario? Revision?		Add new TS Regen I	Heater to permit - r	rimary scenario natural gas combustion				A	Date: 7/20/201
I. EMISSION UNIT(S):		FORK WILDSHIP AMER	477 28	a Ford				Hand		
i. Emission unii(s):			Location							
	S2.XXX/		NAD 8	3 (m)				1	Year	
System	PF1.XXX	Description	North	East	Manufacturer	Model #	Serial #	SCC#	Manufactured	
142A	S2.362NG	TS REGEN HEATER	4,536,401	554,477				1-01-006-02		
II. CONTROL DEVICE(S):					1		Control(s)			I
				Pollutant	Tyme	Control (%)		er's Guarantee Unit	Notes	·
	Parameters .		a a a a a a a a a a a a a a a a a a a	PM	Type	Control Val	Tacol	Ont	1000	
Height (ft): Diameter (ft):		61.5 1.67		PM10 PM2.5						-
Temp (°F): Exit Vel (fps):		400 24,1		SO2 NOX						
Vol (ACFM): Vol (DSCFM):		3,154 1,900		CO						
voi (DSCFM).		1,500		Pb						
				Hg H2S						
				HAPS						
III. Operating Parameters:			heavyl	····					Davis O. C.	1
Operating Hours hr/day	<u>hr/yr</u>	<u>Hourly</u>	hroughput/Fuel Usage Annual	<u>Unit</u>	Fuel Type	t (MMBtu) Hourly	Annual	Hourly	Power Output <u>Unit</u>	Heat Content (BTU/scf)
24	4,380	6,863,0	30,059,940.0	scf	Natural Gas	7.00	30,661.14			1,020
		Coal	Note: The Co	onversion section is Gasoline	used for calculating to and from throughput/fuel usage Natural Gas		content values. See below f	or typical values.		
	D	(BTU/lb)	(BTU/gal)	(BTU/gal)	(BTU/scf)	Propane (BTU/gallon)				•
	Default	13,000	140,000	114,000	1,020	90,500	I		If used a formula to calculate: TYPE FORMU	LA
IV. Emission Limit Calculations:				Unc	ontrolled					
Pollutant	Other E	Emission Factor Unit	Actual Emiss Factor		Emission Limit	tonha	Reference		Notes	
PM	a actor	OH:	0.011	lb/mmbtu	0.08	ton/yr 0.17	Reference AP-42, Sec. 1.4 w/ s.f. (a)		s.f. = safety factor	
PM10 PM2.5	1		0.011	lb/mmbtu lb/mmbtu	0.08	0.17	AP-42, Sec. 1.4 w/s.f. (a) AP-42, Sec. 1.4 w/s.f. (a)		s.f. = safety factor s.f. = safety factor	
SO2 NOX			0.017 0.213	lb/mmbtu lb/mmbtu	0.12 1.49	0.26 3.27	AP-42, Sec. 1.4 w/s.f. (ap AP-42, Sec. 1.4 w/s.f. (ap		s.f. = safety factor s.f. = safety factor	
со			0.164	lb/mmbtu	1.15	2.51	AP-42, Sec. 1.4 w/s.f. (ap	plicant-requested)	s.f. = safety factor	
voc	L		0.026	lb/mmbtu_	0.18	0.40	AP-42, Sec. 1.4 w/s.f. (ap	oplicant-requested)	s.f. = safety factor	
					Formula for Uncontrolled Li	imit (lb/hr):				
			· · · · · · · ·		Controlled		1		***************************************	
Pollutant	Factor Conti	rolled Factor Unit	Controlled Factor	or (%Control) Unit	Emission Limit lb/hr	ton/yr	Emission Lin lb/hr	nit (%Control) ton/yr	Reference	Notes
PM PM10			0.011	lb/mmbtu lb/mmbtu			0.08	0.17	AP-42, Sec. 1.4 w/ s.f. (applicant-requested) AP-42, Sec. 1.4 w/ s.f. (applicant-requested)	s.f. = safety factor s.f. = safety factor
PM2.5			0.011	lb/mmbtu			0.08	0.17	AP-42, Sec. 1.4 w/ s.f. (applicant-requested)	s.f. = safety factor
SO2 NOX			0.01714 0.213	lb/mmbtu lb/mmbtu			0.12 1.49	0.26 3.27	AP-42, Sec. 1.4 w/ s.f. (applicant-requested) AP-42, Sec. 1.4 w/ s.f. (applicant-requested)	s.f. = safety factor s.f. = safety factor
co voc			0.164 0.026	lb/mmbtu lb/mmbtu			1.15 0.18	2.51 0.40	AP-42, Sec. 1.4 w/ s.f. (applicant-requested) AP-42, Sec. 1.4 w/ s.f. (applicant-requested)	s.f. = safety factor s.f. = safety factor
					Formula for Controlled Lin	mit(lh/hr):	i pragatijai			
								No. of the second		
		ssion Factor			Permitted Emission I				Compare to Source Testing	
Pollutant PM	Factor 0.011	Unit lb/mmbtu	lb/hr 0.08	ton/yr 0.17	Reference AP-42, Sec. 1.4 w/ s.f. (applicant-requested)	Notes s.f. = safety factor	Factor	Unit	lb/hr	ton/yr
PM10 PM2.5	0.011	lb/mmbtu lb/mmbtu	0.08	0.17 0.17	AP-42, Sec. 1.4 w/ s.f. (applicant-requested) AP-42, Sec. 1.4 w/ s.f. (applicant-requested)	s.f. = safety factor s.f. = safety factor				
SO2	0.017	lb/mmbtu	0.12	0.26	AP-42, Sec. 1.4 w/ s.f. (applicant-requested)	s.f. = safety factor				
NOX CO	0.213 0.164	lb/mmbtu lb/mmbtu	1.49 1.15	3,27 2.51	AP-42, Sec. 1.4 w/ s.f. (applicant-requested) AP-42, Sec. 1.4 w/ s.f. (applicant-requested)	s.f. = safety factor s.f. = safety factor				
VOC	0.026	lb/mmbtu	0.18	0.40	AP-42, Sec. 1.4 w/ s.f. (applicant-requested)	s.f. = safety factor				
W. C			1	l			1 - 3	1		
V. Green House Gases	Factor	Unit	lb/hr	ton/yr	GWP Multiplier	GWP lb/hr	GWP ton/yr	Reference	Using Source Testin GWP lb/hr	g GWP ton/yr
CO2 CH4	117,00 0.0022	lb/MMBtu	819.0 0.0	1,793.7	1 21	819,0 0.3	1,793.7			-
N2O	0.0006	lb/MMBtu	0.0	0.0	310	1.3	2.9	1		
					TOTAL CO2e:	821	1,797	0		
VI. Hazardous Air Pollutants:		· · · · · · · · · · · · · · · · · · ·								·
					Hazardous Air Pollut	tants				Calculusi: B 1
HAP Pollutant	Un Factor	controlled Unit	Contro Factor	lled Unit	Uncontrolled Emission (lb/hr)	Emission (ton/yr)	Contr Emission (lb/hr)	olled Emission (ton/yr)	Removal Factor	Calculation Reference
ΓΟΤALS:					0.001	0.001	0.001	0.001		AP42 Table 1.4-3
2-Methylnaphthalene 3-Methylchloranthrene	2.35E-08 1.76E-09	lb/MMBtu lb/MMBtu	2.35E-08 1.76E-09	lb/MMBtu lb/MMBtu	1.65E-07 1.24E-08	3.61E-07 2.71E-08	1.65E-07 1.24E-08	3.61E-07 2.71E-08		AP42 Table 1.4-3 AP42 Table 1.4-3
7,12-Dimethylbenz(a)anthracene Acenaphthene	1,57E-08 1,76E-09	lb/MMBtu lb/MMBtu	1.57E-08 1.76E-09	lb/MMBtu lb/MMBtu	1.10E-07 1.24E-08	2.40E-07 2.71E-08	1.10E-07 1.24E-08	2.40E-07 2.71E-08		AP42 Table 1.4-3 AP42 Table 1.4-3
Acenaphthylene	1.76E-09	lb/MMBtu	1.76E-09	lb/MMBtu	1.24E-08	2.71E-08	1.24E-08	2.71E-08		AP42 Table 1.4-3
Anthracene Benz(a)anthracene	2.35E-09 1.76E-09	lb/MMBtu lb/MMBtu	2.35E-09 1.76E-09	lb/MMBtu lb/MMBtu	1.65E-08 1.24E-08	3.61E-08 2.71E-08	1.65E-08 1.24E-08	3.61E-08 2.71E-08		AP42 Table 1.4-3 AP42 Table 1.4-3
Benzene Benzo(a)pyrene	2.06E-06 1.18E-09	lb/MMBtu lb/MMBtu	2.06E-06 1.18E-09	lb/MMBtu lb/MMBtu	1.44E-05 8.24E-09	3.16E-05 1.80E-08	1.44E-05 8.24E-09	3.16E-05 1.80E-08		AP42 Table 1.4-3 AP42 Table 1.4-3
Benzo(b)fluoranthene	1.76E-09	lb/MMBtu	1.76E-09	lb/MMBtu	1.24E-08	2.71E-08	1.24E-08	2.71E-08		AP42 Table 1.4-3
Benzo(g,h,i)perylene Benzo(k)fluoranthene	1,76E-09 2,06E-06	lb/MMBtu lb/MMBtu	1.76E-09 2.06E-06	lb/MMBtu lb/MMBtu	1.24E-08 1.44E-05	2.71E-08 3.16E-05	1.24E-08 1.44E-05	2.71E-08 3.16E-05		AP42 Table 1.4-3 AP42 Table 1.4-3
Chrysene Dibenzo(a,h)anthracene	1,76E-09 1.18E-09	lb/MMBtu lb/MMBtu	1.76E-09 1.18E-09	lb/MMBtu lb/MMBtu	1.24E-08 8.24E-09	2.71E-08 1.80E-08	1.24E-08 8.24E-09	2.71E-08 1.80E-08		AP42 Table 1.4-3 AP42 Table 1.4-3
Dichlorobenzene	1.18E-06	lb/MMBtu	1.18E-06	lb/MMBtu	8.24E-06	1.80E-05	8.24E-06	1.80E-05		AP42 Table 1.4-3
Fluoranthene Fluorene	2.94E-09 2.75E-09	lb/MMBtu lb/MMBtu	2.94E-09 2.75E-09	lb/MMBtu lb/MMBtu	2.06E-08 1.92E-08	4.51E-08 4.21E-08	2.06E-08 1.92E-08	4.51E-08 4.21E-08		AP42 Table 1.4-3 AP42 Table 1.4-3
Formaldehyde	7.35E-05	lb/MMBtu	7.35E-05	lb/MMBtu	5.15E-04	1.13E-03	5.15E-04	1.13E-03		AP42 Table 1.4-3 PERF 1997, AP42 po
Hexane	4,22E-07	lb/MMBtu	4.22E-07	lb/MMBtu	2.95E-06	6.47E-06	2.95E-06	6.47E-06		factor rating
Indeno(1,2,3-cd)pyrene	1,76E-09 5.98E-07	lb/MMBtu lb/MMBtu	1.76E-09 5.98E-07	lb/MMBtu lb/MMBtu	1.24E-08 4.19E-06	2.71E-08 9.17E-06	1,24E-08 4.19E-06	2.71E-08 9.17E-06		AP42 Table 1.4-3 AP42 Table 1.4-3
Napthalene			1 (57 00	11 a a a a				2.555.05		AD40 T-LL-14-2
	1.67E-08 4.90E-09	lb/MMBtu lb/MMBtu	1.67E-08 4.90E-09	lb/MMBtu lb/MMBtu	1.17E-07 3.43E-08	2.56E-07 7.51E-08	1.17E-07 3.43E-08	2.56E-07 7.51E-08		AP42 Table 1.4-3 AP42 Table 1.4-3

	Neva	Bureau of Air Pollutio				BARRICK GOLDSTRIKE			PAT MOHN	5/21/2013
		POLLUTANT	'S		Project Name:	RIL CIRCUIT OPTC			7349	Case: REVISION
FIN:	A0005	EMISSIONS CALCUI Permit Number:			System:	TS REGEN HEATER (PROPAN			XXXX XXXX	TYPE OF AP TYPE OF AP
Alt Operati	ing Scenario?	YES/NO YES	Notes Propane is the alterna	ative fuel.					Approved:	Date: 7/26/20/3
•	Revision?		Add new TS Regen I		the alternative fuel.					
EMISSION	UNIT(S):		Location	n IITM				**** 1		
	S2.XXX/	1	NAD 8				I	J	Year	
System	PF1.XXX	Description	North	East	Manufacturer	Model #	Serial #	<u>SCC #</u>	Manufactured	
142B	S2.362P	TS REGEN HEATER (PROPANE)	4,536,401	554,477				[-03-010-02		
CONTRO	L DEVICE(S	S):								
				Pollutant	_			er's Guarantee		
	Stack Par		8	PM	Type	Control (%)	Factor	Unit	Notes	
ht (ft); neter (ft):		61.5 1.67		PM10 PM2.5			PRICE PRICE			
p (°F): Vel (fps):		400 24.1	-	SO2 NOX			10 TA			
(ACFM): (DSCFM):		3,154 1,900	- -	CO						,
, 		Communication of the state of t		Pb						
				Hg H2S						
				HAPS	- Annual Market St. Communication of the Communicat			Tital.		
Operatin		Thro	oughput/Fuel Usage			Heat Input (MMBtu)			Power Output	Heat Content
r/day 24	<u>hr/yr</u> 4,380	Hourly 77.0	<u>Annual</u> 337,260.0	<u>Unit</u> gal	Fuel Type Propane	Hourly 7.0	Annual 30,859.29	<u>Hourly</u>	<u>Unit</u>	(BTU/gailon) 91,500
XXXXII				N	te: The Conversion section is used for calculat	ting to and from throughput/fuel usage and heat in	ut using heat content values. Se	e below for twoical values		
								c ocion for typical values	•	
		Coal (RTIJIb)	Diesel (RTII/onl)	Gasoline	Natural Gas	Propane				
1	Default	Coal (BTU/lb) 13,000	Diesel (BTU/gal) 140,000				: 1		If used a formula to calculate: TYPE	FORMULA
	Default Limit Calcula	(BTU/lb) 13,000	(BTU/gal)	Gasoline (BTU/gal)	Natural Gas (BTU/scf) 1,020	Propane (BTU/gallon)			If used a formula to calculate: TYPE	FORMULA
Emission	Limit Calcula	(BTU/lb) 13,000 ations: er Emission Factor	(BTU/gal) 140,000 Actual Emis	Gasoline (BTU/gal) 114,000	Natural Gas (BTU/scf) 1,020 Uncontrolled En	Propane (BTU/gallon) 91,500				FORMULA
Emission blutant PM	Limit Calcula	(BTU/lb) 13,000	(BTU/gal) 140,000 Actual Emis Factor 1010	Gasoline (BTU/gal) 114,000 sion Factor Unit 1b/1000 gallon	Natural Gas (BTU/scf) 1,020 Uncontrolled En 1b/hr 0.08	Propane (BTU/gallon) 91,500	Reference AP-42, Sec. 1.5 w/s.f. (a)		Notes s.f. = saf	ety factor
Emission Dilutant PM PM10	Limit Calcula	(BTU/lb) 13,000 ations: er Emission Factor	(BTU/gal) 140,000 Actual Emis	Gasoline (BTU/gal) 114,000 sion Factor Unit	Natural Gas (BTU/scf) 1,020 Uncontrolled En	Propane (BTU/gallon) 91,500 mission Limit ton/yr	AP-42, Sec. 1.5 w/s.f. (ap AP-42, Sec. 1.5 w/s.f. (ap	oplicant-requested)	Notes	ety factor
Emission	Limit Calcula	(BTU/lb) 13,000 ations: er Emission Factor	(BTU/gal) 140,000 Actual Emis Factor 1.010 1.010 1.010 1.550	Gasoline (BTU/gal) 114,000 sion Factor Unit 1b/1000 gallon 1b/1000 gallon 1b/1000 gallon	Natural Gas (BTU/scf) 1,020	Propane (BTU/gallon) 91,500 1,500 1,500 1,500 1,500 1,500 1,500 1,500 1,500	AP-42, Sec. 1.5 w/s.f. (ap AP-42, Sec. 1.5 w/s.f. (ap AP-42, Sec. 1.5 w/s.f. (ap AP-42, Sec. 1.5, SO2 = 0.	pplicant-requested) pplicant-requested) .10*S	Notes s.f. = saf	ety factor
Emission ollutant PM PM10 PM2.5 SO2 NOX CO	Limit Calcula	(BTU/lb) 13,000 ations: er Emission Factor	(BTU/gal) 140,000 Actual Emis Factor 1.010 1.010 1.550 19.364 15.010	Gasoline (BTU/gal) 114,000 sion Factor Unit lb/1000 gallon lb/1000 gallon lb/1000 gallon lb/1000 gallon lb/1000 gallon	Natural Gas (BTU/scf) 1,020 Uncontrolled En b/hr 0.08 0.08 0.08 0.12 1.49 1.16	Propane (BTU/gallon) 91,500 91,500 91,500 91,500 91,500 91,500 91,70 9.17 9.17 9.26 3.27 2.53	AP-42, Sec. 1.5 w/s.f. (ap AP-42, Sec. 1.5 w/s.f. (ap AP-42, Sec. 1.5 w/s.f. (ap AP-42, Sec. 1.5, SO2 = 0. AP-42, Sec. 1.5 w/s.f. (ap AP-42, Sec. 1.5 w/s.f. (ap	oplicant-requested) pplicant-requested) .10*S pplicant-requested) pplicant-requested)	Notes s.f. = saf	ety factor
Emission Collutant PM PM10 PM2.5 SO2 NOX CO	Limit Calcula	(BTU/lb) 13,000 ations: er Emission Factor	(BTU/gal) 140,000 Actual Emis Factor 1.010 1.010 1.550 19.364	Gasoline (BTU/gal) 114,000 sion Factor Unit 1b/1000 gallon 1b/1000 gallon 1b/1000 gallon 1b/1000 gallon	Natural Gas (BTU/scf) 1,020 Uncontrolled En lb/hr 9.08 9.08 9.12 1.49	Propane (BTU/gallon) 91,500 1,500	AP-42, Sec. 1.5 w/s.f. (ap AP-42, Sec. 1.5 w/s.f. (ap AP-42, Sec. 1.5 w/s.f. (ap AP-42, Sec. 1.5, SO2 = 0. AP-42, Sec. 1.5 w/s.f. (ap	oplicant-requested) pplicant-requested) .10*S pplicant-requested) pplicant-requested)	Notes s.f. = saf	ety factor
Emission ollutant PM PM10 PM2.5 SO2 NOX CO	Limit Calcula	(BTU/lb) 13,000 ations: er Emission Factor	(BTU/gal) 140,000 Actual Emis Factor 1.010 1.010 1.550 19.364 15.010	Gasoline (BTU/gal) 114,000 sion Factor Unit lb/1000 gallon lb/1000 gallon lb/1000 gallon lb/1000 gallon lb/1000 gallon	Natural Gas (BTU/scf) 1,020 Uncontrolled En b/hr 0.08 0.08 0.08 0.12 1.49 1.16	Propane (BTU/gallon) 91,500 91,500 91,500 91,500 91,500 91,500 91,70 9.17 9.17 9.26 3.27 2.53	AP-42, Sec. 1.5 w/s.f. (ap AP-42, Sec. 1.5 w/s.f. (ap AP-42, Sec. 1.5 w/s.f. (ap AP-42, Sec. 1.5, SO2 = 0. AP-42, Sec. 1.5 w/s.f. (ap AP-42, Sec. 1.5 w/s.f. (ap	oplicant-requested) pplicant-requested) .10*S pplicant-requested) pplicant-requested)	Notes s.f. = saf	ety factor
Emission Dilutant PM PM10 PM2.5 SO2 NOX CO	Limit Calcula Othe Factor	(BTU/lb) 13,000 ations: er Emission Factor	(BTU/gal) 140,000 Actual Emis Factor 1.010 1.010 1.550 19.364 15.010	Gasoline (BTU/gal) 114,000 sion Factor Unit 1b/1000 gallon	Natural Gas (BTU/scf) 1,020 Uncontrolled En	Propane (BTU/gallon) 91,500 1,500	AP-42, Sec. 1.5 w/ s.f. (a) AP-42, Sec. 1.5 w/ s.f. (a)	pplicant-requested) pplicant-requested) 1.0*S pplicant-requested) pplicant-requested) pplicant-requested) pplicant-requested)	Notes s.f. = saf	ety factor
Emission Ollutant PM PM10 M2.5 S02 NOX CO VOC	Limit Calcula Othe Factor	(BTU/lb) 13,000 ations: er Emission Factor Unit	(BTU/gal) 140,000 Actual Emis Factor 1.010 1.010 1.550 19.364 15.010 2.396 Controlled Fact Factor	Gasoline (BTU/gal) 114,000 sion Factor Unit lb/1000 gallon lb/1000 gallon lb/1000 gallon lb/1000 gallon lb/1000 gallon lb/1000 gallon or (%Control) Unit	Natural Gas (BTU/scf) 1,020 Uncontrolled En	Propane (BTU/gallon) 91,500 91,500 1	AP-42, Sec. 1.5 w/ s.f. (a)	pplicant-requested) pplicant-requested) .10+S pplicant-requested) pplicant-requested) pplicant-requested) pplicant-requested) pplicant-requested) mit (%Control) ton/yr	Notes s.f. = saf S = 15.5 gr/100 a S = 15.5 gr/100 a Reference	cty factor zu fl. (185 ppmw)
Emission Hutant PM M10 M2.5 SO2 NOX CO VOC	Limit Calcula Othe Factor	(BTU/lb) 13,000 ations: er Emission Factor Unit	(BTU/gal) 140,000 Actual Emis Factor 1.010 1.010 1.550 19.364 15.010 2.396 Controlled Fact Factor 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0	Gasoline (BTU/gal) 114,000 sion Factor Unit 1b/1000 gallon	Natural Gas (BTU/scf) 1,020 Uncontrolled En Ib/hr 0.08 0.08 0.08 0.12 1.49 1.16 0.18 Controlled En	Propane (BTU/gallon) 91,500	AP-42, Sec. 1.5 w/ s.f. (a)	pplicant-requested) pplicant-requested) .10*S pplicant-requested) pplicant-requested) pplicant-requested) pplicant-requested) pplicant-requested) mit (%Control) ton/yr 0.17 0.17	Notes s.f. = saf S = 15.5 gr/100 c S = 15.5 gr/100 c Reference AP-42, Sec. 1.5 w/s.f. (applicant-requested) AP-42, Sec. 1.5 w/s.f. (applicant-requested)	ety factor zu.fl. (185 ppmw) Notes s.f. = safety factor
Emission Dilutant PM PM10 PM2.5 SO2 NOX CO VOC Dilutant PM PM PM10 M2.5	Limit Calcula Othe Factor	(BTU/lb) 13,000 ations: er Emission Factor Unit	(BTU/gal) 140,000 140,000 140,000 Actual Emis Factor 1.010 1.010 1.550 19.364 15.010 2.396 Controlled Factor 1.0	Gasoline (BTU/gal) 114,000 sion Factor Unit 1b/1000 gallon	Natural Gas (BTU/scf) 1,020 Uncontrolled En Ib/hr 0.08 0.08 0.08 0.12 1.49 1.16 0.18 Controlled En	Propane (BTU/gallon) 91,500	AP-42, Sec. 1.5 w/ s.f. (a) Emission Lin Ib/hr 0.08 0.08	pplicant-requested) pplicant-requested) .10+S pplicant-requested) pplicant-requested) pplicant-requested) pplicant-requested) mit (%Control) ton/yr 0.17 0.17	Notes s.f. = saf S = 15.5 gr/100 c Reference AP-42, Sec. 1.5 w/ s.f. (applicant-requested)	ety factor zu.fl. (185 ppmw) Notes s.f. = safety factor
Emission biliutant PM biliutant CO VOC biliutant PM pM10 M2.5 SO2 NOX CO VOC	Limit Calcula Othe Factor	(BTU/lb) 13,000 ations: er Emission Factor Unit	(BTU/gal) 140,000 Actual Emis Factor 1.010 1.010 1.550 19.364 15.010 2.396	Gasoline (BTU/gal) 114,000 sion Factor Unit 1b/1000 gallon	Natural Gas (BTU/scf) 1,020 Uncontrolled En Ib/hr 0.08 0.08 0.08 0.12 1.49 1.16 0.18 Controlled En	Propane (BTU/gallon) 91,500	AP-42, Sec. 1.5 w/ s.f. (a) AP	pplicant-requested) pplicant-requested) 1.0*S pplicant-requested) pplicant-requested) pplicant-requested) pplicant-requested) pplicant-requested) mit (%Control) ton/yr 0.17 0.17 0.17 0.26 3.27	Notes s.f. = saf S = 15.5 gr/100 c Reference AP-42, Sec. 1.5 w/s.f. (applicant-requested)	ety factor zu.fl. (185 ppmw) Notes s.f. = safety factor
Emission PM M10 M2.5 SO2 NOX CO VOC Silutant PM PM PM M2.5 SO2	Limit Calcula Othe Factor	(BTU/lb) 13,000 ations: er Emission Factor Unit	(BTU/gal) 140,000 140,000 Actual Emis Factor 1,010 1,010 1,550 19,364 15,010 2,396 Controlled Factor Factor 1,0 1,0 1,55 1,00 1,00 1,55 1,00 1,55 1,00 1,00 1,55 1,55	Gasoline (BTU/gal) 114,000 sion Factor Unit lb/1000 gallon	Natural Gas (BTU/scf) 1,020 Uncontrolled En Ib/hr 0.08 0.08 0.08 0.12 1.49 1.16 0.18 Controlled En	Propane (BTU/gallon) 91,500	AP-42, Sec. 1.5 w/s.f. (a) Emission Lin Ib/hr 0.08 0.08 0.08 0.12	pplicant-requested) pplicant-requested) 1.0*S pplicant-requested) pplicant-requested) pplicant-requested) pplicant-requested) pplicant-requested) mit (%Control) ton/yr 0.17 0.17 0.17 0.26	Notes s.f. = saf S = 15.5 gr/100 a S = 15.5 w/s.f. (applicant-requested) AP-42, Sec. 1.5 w/s.f. (applicant-requested) AP-42, Sec. 1.5 w/s.f. (applicant-requested) AP-42, Sec. 1.5 w/s.f. (applicant-requested) AP-42, Sec. 1.5, SO2 = 0.10*S	ety factor zu.fl. (185 ppmw) Notes s.f. = safety factor
Emission PM PM10 PM2.5 SO2 NOX CO VOC Dilutant PM PM10 PM2.5 SO2 SO2 NOX CO	Limit Calcula Othe Factor	(BTU/lb) 13,000 ations: er Emission Factor Unit	(BTU/gal) 140,000 140,000 140,000 140,000 140,000 1,010 1,010 1,010 1,550 19,364 15,010 2,396	Gasoline (BTU/gal) 114,000 sion Factor Unit 1b/1000 gallon	Natural Gas (BTU/scf) 1,020 Uncontrolled En Ib/hr 0.08 0.08 0.08 0.12 1.49 1.16 0.18 Controlled En	Propane (BTU/gallon) 91,500	AP-42, Sec. 1.5 w/ s.f. (a) AP-42, Sec. 1.5 w/ s.f. (a) AP-42, Sec. 1.5 w/ s.f. (a) AP-42, Sec. 1.5, SO2 = 0. AP-42, Sec. 1.5 w/ s.f. (a) AP-4	pplicant-requested) pplicant-requested) 1.0*S pplicant-requested) pplicant-requested) pplicant-requested) pplicant-requested) mit (%Control) ton/yr 0.17 0.17 0.17 0.26 3.27 2.53	Notes s.f. = saf S = 15.5 gr/100 a AP-42, Sec. 1.5 w/ s.f. (applicant-requested) AP-43, Sec. 1.5 w/ s.f. (applicant-requested) AP-44, Sec. 1.5 w/ s.f. (applicant-requested) AP-45, Sec. 1.5 w/ s.f. (applicant-requested) AP-46, Sec. 1.5 w/ s.f. (applicant-requested) AP-47, Sec. 1.5 w/ s.f. (applicant-requested) AP-48, Sec. 1.5 w/ s.f. (applicant-requested) AP-49, Sec. 1.5 w/ s.f. (applicant-requested) AP-49, Sec. 1.5 w/ s.f. (applicant-requested) AP-40, Sec. 1.5 w/ s.f. (applicant-requested) AP-41, Sec. 1.5 w/ s.f. (applicant-requested) AP-42, Sec. 1.5 w/ s.f. (applicant-requested) AP-42, Sec. 1.5 w/ s.f. (applicant-requested) AP-45, Sec. 1.5 w/ s.f. (applicant-requested)	ety factor zu.fl. (185 ppmw) Notes s.f. = safety factor
Emission Dilutant PM PM10 PM2.5 SO2 NOX CO VOC Dilutant PM M10 PM2.5 SO2 NOX CO VOC	Confactor Confactor Confactor	(BTU/lb) 13,000 ations: er Emission Factor Unit ontrolled Factor Unit mission Factor	(BTU/gal) 140,000 140,000 140,000 140,000 140,000 1,010 1,010 1,010 1,550 19,364 15,010 2,396	Gasoline (BTU/gal) 114,000 sion Factor Unit 1b/1000 gallon	Natural Gas (BTU/scf) 1,020 Uncontrolled En Ib/hr 0.08 0.08 0.08 0.12 1.49 1.16 0.18 Controlled En	Propane (BTU/gallon) 91,500	AP-42, Sec. 1.5 w/ s.f. (a) AP-42, Sec. 1.5 w/ s.f. (a) AP-42, Sec. 1.5 w/ s.f. (a) AP-42, Sec. 1.5, SO2 = 0. AP-42, Sec. 1.5 w/ s.f. (a) AP-4	pplicant-requested) pplicant-requested) 1.0*S pplicant-requested) pplicant-requested) pplicant-requested) pplicant-requested) mit (%Control) ton/yr 0.17 0.17 0.17 0.26 3.27 2.53	Notes s.f. = saf S = 15.5 gr/100 a	ety factor zu.fl. (185 ppmw) Notes s.f. = safety factor
Emission PM M10 M2.5 SO2 NOX CO VOC Sillutant PM PM M2.5 SO2 NOX CO VOC Sillutant PM M2.5 SO2 NOX CO VOC	Co Factor	mission Factor Unit	(BTU/gal) 140,000 140,000 140,000 140,000 140,000 1.010 1.010 1.010 1.550 19.364 15.010 2.396	Gasoline (BTU/gal) 114,000 sion Factor Unit 1b/1000 gallon	Natural Gas (BTU/scf) 1,020 Uncontrolled En Ib/hr 0.08 0.08 0.08 0.12 1.49 1.16 0.18 Controlled En Ib/hr Reference	Propane (BTU/gallon) 91,500	AP-42, Sec. 1.5 w/ s.f. (a) AP-42, Sec. 1.5 w/ s.f. (a) AP-42, Sec. 1.5 w/ s.f. (a) AP-42, Sec. 1.5, SO2 = 0. AP-42, Sec. 1.5 w/ s.f. (a) AP-4	pplicant-requested) pplicant-requested) 1.0*S pplicant-requested) pplicant-requested) pplicant-requested) pplicant-requested) mit (%Control) ton/yr 0.17 0.17 0.17 0.26 3.27 2.53	Reference AP-42, Sec. 1.5 w/ s.f. (applicant-requested) AP-42, Sec. 1.5	ety factor zu.fl. (185 ppmw) Notes s.f. = safety factor
Emission pollutant PM PM10 PM2.5 SO2 NOX CO VOC pollutant PM PM10 PM2.5 SO2 NOX CO VOC lilutant PM PM10 PM10 PM2.5 SO2 NOX CO VOC lilutant PM PM10 PM10 PM10 PM10 PM10 PM10 PM10 P	Co Factor Er Factor 1.010	mission Factor Unit bi/1000 gallon bi/1000 gallon	Actual Emis Factor	Gasoline (BTU/gal) 114,000 sion Factor Unit 1b/1000 gallon	Natural Gas (BTU/scf) 1,020 Uncontrolled En Ib/hr 0.08 0.08 0.12 1.49 1.16 0.18 Controlled En Ib/hr En Controlled En En Controlled En En Controlled En En Controlled En Control	Propane (BTU/gallon) 91,500	AP-42, Sec. 1.5 w/s.f. (a) Emission Lin Ib/hr 0.08 0.08 0.08 0.12 1.49 1.16 0.18	pplicant-requested) pplicant-requested) 1.0*S pplicant-requested) pplicant-requested) pplicant-requested) pplicant-requested) pplicant-requested) mit (%Control) ton/yr 0.17 0.17 0.17 0.17 0.26 3.27 2.53 0.40	Notes s.f. = saf S = 15.5 gr/100 c Reference AP-42, Sec. 1.5 w/s.f. (applicant-requested) Compare to Source Testing	Notes s.f. = safety factor S = 15.5 gr/100 cu.ft. (185 ppn
Emission pollutant PM PM10 PM2.5 SO2 NOX CO VOC plutant PM PM10 PM2.5 SO2 NOX CO VOC llutant PM PM10 PM2.5 SO2 NOX CO VOC	Co Factor Co Factor Co Factor Linit Calcula	mission Factor Unit bi/1000 gallon bi/1000 gallon bi/1000 gallon	Actual Emis Factor 1.010 1.010 1.550 19.364 15.010 2.396	Gasoline (BTU/gal) 114,000 sion Factor Unit 1b/1000 gallon	Natural Gas (BTU/scf) 1,020 Uncontrolled En Ib/hr 0.08 0.08 0.12 1.49 1.16 0.18 Controlled En Ib/hr En Controlled En Controlle	Propane (BTU/gallon) 91,500	AP-42, Sec. 1.5 w/s.f. (a) Emission Lin Ib/hr 0.08 0.08 0.08 0.12 1.49 1.16 0.18	pplicant-requested) pplicant-requested) 1.0*S pplicant-requested) pplicant-requested) pplicant-requested) pplicant-requested) pplicant-requested) mit (%Control) ton/yr 0.17 0.17 0.17 0.17 0.26 3.27 2.53 0.40	Notes s.f. = saf S = 15.5 gr/100 c Reference AP-42, Sec. 1.5 w/s.f. (applicant-requested) Compare to Source Testing	Notes s.f. = safety factor S = 15.5 gr/100 cu.ft. (185 ppn
Emission PM PM10 PM10 PM2.5 SO2 NOX CO VOC Dillutant PM PM10 PM2.5 SO2 NOX CO VOC Dillutant PM PM10 PM2.5 SO2 NOX CO VOC Dillutant PM PM10 PM2.5 SO2 SO2	Co Factor Co Factor Limit Calcula Othe Factor	mission Factor Unit bi/1000 gallon bi/1000 gallon	(BTU/gal) 140,000 140,000 140,000 140,000 140,000 1.010 1.010 1.010 1.550 19.364 15.010 2.396 1.0	Gasoline (BTU/gal) 114,000 sion Factor Unit 1b/1000 gallon	Natural Gas (BTU/scf) 1,020 Uncontrolled En Ib/hr 0.08 0.08 0.12 1.49 1.16 0.18 Controlled En Ib/hr Reference AP-42, Sec. 1.5 w/ s.f. (applicant-reque AP-42, Se	Propane (BTU/gallon) 91,500	AP-42, Sec. 1.5 w/ s.f. (a) Emission Lir Ib/hr 0.08 0.08 0.08 0.08 0.12 1.49 1.16 0.18	pplicant-requested) pplicant-requested) 1.0*S pplicant-requested) pplicant-requested) pplicant-requested) pplicant-requested) pplicant-requested) mit (%Control) ton/yr 0.17 0.17 0.17 0.17 0.26 3.27 2.53 0.40	Notes s.f. = saf S = 15.5 gr/100 c Reference AP-42, Sec. 1.5 w/s.f. (applicant-requested) Compare to Source Testing	Notes s.f. = safety factor S = 15.5 gr/100 cu.ft. (185 ppn
Emission PM PM10 PM2.5 SO2 NOX CO VOC	Co Factor Co Factor Co Factor Linit Calcula	mission Factor Unit bi/1000 gallon bi/1000 gallon bi/1000 gallon	Actual Emis Factor 1.010 1.010 1.550 19.364 15.010 2.396	Gasoline (BTU/gal) 114,000 sion Factor Unit 1b/1000 gallon	Natural Gas (BTU/scf) 1,020 Uncontrolled En Ib/hr 0.08 0.08 0.12 1.49 1.16 0.18 Controlled En Ib/hr Ib/hr En Controlled En C	Propane (BTU/gallon) 91,500 1,500	AP-42, Sec. 1.5 w/ s.f. (a) Emission Lin Ib/hr 0.08 0.08 0.08 0.12 1.49 1.16 0.18	pplicant-requested) pplicant-requested) 1.0*S pplicant-requested) pplicant-requested) pplicant-requested) pplicant-requested) pplicant-requested) mit (%Control) ton/yr 0.17 0.17 0.17 0.17 0.26 3.27 2.53 0.40	Notes s.f. = saf S = 15.5 gr/100 c Reference AP-42, Sec. 1.5 w/s.f. (applicant-requested) Compare to Source Testing	Notes s.f. = safety factor S = 15.5 gr/100 cu.ft. (185 ppn
Emission PM PM10 PM10 PM2.5 SO2 NOX CO VOC Illutant PM PM10 PM2.5 SO2 NOX CO VOC Illutant PM PM10 PM2.5 SO2 NOX CO VOC Illutant PM PM10 PM2.5 SO2 NOX CO VOC Illutant CO VOC CO VOC Illutant CO VOC CO VO	Co Factor Er Factor 1.010 1.010 1.550 19.364	mission Factor Unit billion gallon billion gallon billion gallon billion gallon	Actual Emis Factor 1.010	Gasoline (BTU/gal) 114,000 sion Factor Unit 1b/1000 gallon	Natural Gas (BTU/scf) 1,020	Propane (BTU/gallon) 91,500	AP-42, Sec. 1.5 w/ s.f. (a) Emission Lin Ib/hr 0.08 0.08 0.08 0.12 1.49 1.16 0.18	pplicant-requested) pplicant-requested) 1.0*S pplicant-requested) pplicant-requested) pplicant-requested) pplicant-requested) pplicant-requested) mit (%Control) ton/yr 0.17 0.17 0.17 0.17 0.26 3.27 2.53 0.40	Notes s.f. = saf S = 15.5 gr/100 c Reference AP-42, Sec. 1.5 w/s.f. (applicant-requested) Compare to Source Testing	Notes s.f. = safety factor S = 15.5 gr/100 cu.ft. (185 ppn
Emission PM PM10 PM10 PM2.5 SO2 NOX CO VOC Solution PM PM10 PM2.5 SO2 NOX CO VOC Illutant PM PM10 PM2.5 SO2 NOX CO VOC CO	Co Factor	mission Factor Unit Unit mission Factor Unit b/1000 gallon b/1000 gallon b/1000 gallon b/1000 gallon	(BTU/gal) 140,000 140,000 140,000 140,000 1.010 1.010 1.550 19.364 15.010 2.396 1.0 1.1 1.0 1.1 1.0 1.1 1.0 1.1 1.0 1.1 1.0	Gasoline (BTU/gal) 114,000 sion Factor Unit 1b/1000 gallon	Natural Gas (BTU/scf) 1,020	Propane (BTU/gallon) 91,500	AP-42, Sec. 1.5 w/ s.f. (a) Emission Lin Ib/hr 0.08 0.08 0.08 0.12 1.49 1.16 0.18	pplicant-requested) pplicant-requested) 1.0*S pplicant-requested) pplicant-requested) pplicant-requested) pplicant-requested) pplicant-requested) mit (%Control) ton/yr 0.17 0.17 0.17 0.17 0.26 3.27 2.53 0.40	Notes s.f. = saf S = 15.5 gr/100 c Reference AP-42, Sec. 1.5 w/s.f. (applicant-requested) Compare to Source Testing	Notes s.f. = safety factor S = 15.5 gr/100 cu.ft. (185 ppr
Emission PM PM10 PM2.5 SO2 NOX CO VOC Dilutant PM PM10 PM2.5 SO2 NOX CO VOC Dilutant PM PM10 PM2.5 SO2 NOX CO VOC	Co Factor Er Factor 1.010 1.010 1.550 19.364 15.010 2.396	mission Factor Unit Unit mission Factor Unit b/1000 gallon b/1000 gallon b/1000 gallon b/1000 gallon	(BTU/gal) 140,000 140,000 140,000 140,000 1.010 1.010 1.550 19.364 15.010 2.396 1.0 1.1 1.0 1.1 1.0 1.1 1.0 1.1 1.0 1.1 1.0	Gasoline (BTU/gal) 114,000 sion Factor Unit 1b/1000 gallon	Natural Gas (BTU/scf) 1,020	Propane (BTU/gallon) 91,500	AP-42, Sec. 1.5 w/ s.f. (a) Emission Lin Ib/hr 0.08 0.08 0.08 0.12 1.49 1.16 0.18	pplicant-requested) pplicant-requested) 1.0*S pplicant-requested) pplicant-requested) pplicant-requested) pplicant-requested) pplicant-requested) mit (%Control) ton/yr 0.17 0.17 0.17 0.17 0.26 3.27 2.53 0.40	Reference AP-42, Sec. 1.5 w/s.f. (applicant-requested) Compare to Source Testing Ib/hr	Notes S.f. = safety factor S = 15.5 gr/100 cu.ft. (185 ppn ton/yr
Emission PM PM10 PM10 PM2.5 SO2 NOX CO VOC Dillutant PM PM10 PM2.5 SO2 NOX CO VOC DILLUTANT PM PM10 PM10 PM2.5 SO2 NOX CO VOC DILLUTANT PM PM10 PM10 PM2.5 SO2 NOX CO VOC DILLUTANT PM PM10 PM1.5 SO2 NOX CO VOC DILLUTANT PM PM10 PM2.5 SO2 NOX CO VOC DILLUTANT PM PM10 PM2.5 SO2 NOX CO VOC DILLUTANT PM PM10 PM2.5 SO2 NOX CO VOC DILLUTANT PM PM10 PM2.5 SO2 NOX CO VOC DILLUTANT PM PM10 PM2.5 SO2 NOX CO VOC DILLUTANT PM PM10 PM2.5 SO2 NOX CO VOC DILLUTANT PM PM10 PM2.5 SO2 NOX CO VOC DILLUTANT PM PM10 PM2.5 SO2 NOX CO VOC DILLUTANT PM PM10 PM2.5 SO2 NOX CO VOC DILLUTANT PM PM10 PM2.5 SO2 NOX CO VOC DILLUTANT PM PM10 PM10 PM2.5 SO2 NOX CO VOC DILLUTANT PM PM10 PM10 PM2.5 SO2 NOX CO VOC DILLUTANT PM PM10 PM10 PM2.5 SO2 NOX CO VOC DILLUTANT PM PM10 PM10 PM10 PM2.5 SO2 NOX CO VOC DILLUTANT PM PM10 PM10 PM10 PM10 PM10 PM10 PM10 P	Co Factor Er Factor 1.010 1.010 1.550 19.364 15.010 2.396	mission Factor Unit bi/1000 gallon	(BTU/gal) 140,000 140,000 140,000 140,000 140,000 1,010 1,010 1,010 1,550 19,364 15,010 2,396 1,0 1,0 1,0 1,0 1,55 19,364 15,01 2,396 1,15 19,364 15,01 2,396 1,15 1,0	Gasoline (BTU/gal) 114,000 sion Factor Unit 1b/1000 gallon	Natural Gas (BTU/scf) 1,020	Propane (BTU/gallon) 91,500	AP-42, Sec. 1.5 w/ s.f. (a) Emission Lin Ib/hr 0.08 0.08 0.08 0.08 0.12 1.49 1.16 0.18 Factor	pplicant-requested) pplicant-requested) 1.0*S pplicant-requested) pplicant-requested) pplicant-requested) pplicant-requested) pplicant-requested) mit (%Control) ton/yr 0.17 0.17 0.17 0.17 0.26 3.27 2.53 0.40	Notes s.f. = saf S = 15.5 gr/100 ct	Notes S.f. = safety factor S = 15.5 gr/100 cu.ft. (185 ppn ton/yr
Emission Ollutant PM PM10 PM2.5 SO2 NOX CO VOC Ollutant PM PM10 PM2.5 SO2 NOX CO VOC Ollutant PM PM10 PM2.5 SO2 NOX CO VOC Ollutant CO	Er Factor Co Factor 1.010 1.010 1.010 1.550 19.364 15.010 2.396	mission Factor Unit bi/1000 gallon	(BTU/gal) 140,000 140,000 140,000 140,000 140,000 1.010 1.010 1.010 1.550 19.364 15.010 2.396 1.0 1.0 1.0 1.0 1.0 1.5 19.364 15.01 2.396 1.5 19.364 15.01 2.396 1.15 1.5 1	Gasoline (BTU/gal) 114,000 sion Factor Unit 1b/1000 gallon	Natural Gas (BTU/scf) 1,020 Uncontrolled En Ib/hr 0.08 0.08 0.08 0.12 1.49 1.16 0.18 Controlled En Ib/hr En Controlled En	Propane (BTU/gallon) 91,500 mission Limit ton/yr 0.17 0.17 0.17 0.17 0.26 3.27 2.53 0.40 Formula for Uncontrolled Limit (lb/hr): mission Limit ton/yr Formula for Controlled Limit (lb/hr): Permitted Emission Limits Notes seted) S = 15.5 gr/100 cu.ft. (185 ppmwested) ested) Requested permit limit slightly differ than calc'd above due to rounding enterties.	AP-42, Sec. 1.5 w/ s.f. (a) AP-42, Sec. 1.5 v/ s.f. (a) AP-42, Sec. 1.5 w/ s.f. (a) AP-42, Sec. 1.5 w/ s.f. (a) Emission Lin Ib/hr 0.08 0.08 0.08 0.08 0.12 1.49 1.116 0.18 Factor	pplicant-requested) pplicant-requested) 1.0*S pplicant-requested) pplicant-requested) pplicant-requested) pplicant-requested) pplicant-requested) mit (%Control) ton/yr 0.17 0.17 0.17 0.17 0.17 0.16 3.27 2.53 0.40 Unit	Reference AP-42, Sec. 1.5 w/ s.f. (applicant-requested) AP-42, Sec. 1.5 w/ s.f. (applicant-requested) AP-42, Sec. 1.5 w/ s.f. (applicant-requested) AP-42, Sec. 1.5 sw/ s.f. (applicant-requested) AP-42, Sec. 1.5 sw/ s.f. (applicant-requested) AP-42, Sec. 1.5 sw/ s.f. (applicant-requested) AP-42, Sec. 1.5 w/ s.f. (applicant-requested) AP-42, Sec. 1.5 w/ s.f. (applicant-requested) AP-42, Sec. 1.5 w/ s.f. (applicant-requested) Compare to Source Testing Ib/hr Using Sou	Notes S.f. = safety factor S = 15.5 gr/100 cu.ft. (185 ppn ton/yr
Emission Ollutant PM PM10 PM2.5 SO2 NOX CO VOC	Co Factor Er Factor 1.010 1.010 1.550 19.364 15.010 2.396	mission Factor Unit bi/1000 gallon	(BTU/gal) 140,000 140,000 140,000 140,000 140,000 1,010 1,010 1,010 1,550 19,364 15,010 2,396 1,0 1,0 1,0 1,0 1,55 19,364 15,01 2,396 1,15 19,364 15,01 2,396 1,15 1,0	Gasoline (BTU/gal) 114,000 sion Factor Unit 1b/1000 gallon	Natural Gas (BTU/scf) 1,020	Propane (BTU/gallon) 91,500	AP-42, Sec. 1.5 w/ s.f. (a) Emission Lin Ib/hr 0.08 0.08 0.08 0.08 0.12 1.49 1.16 0.18 Factor	pplicant-requested) pplicant-requested) 1.0*S pplicant-requested) pplicant-requested) pplicant-requested) pplicant-requested) pplicant-requested) mit (%Control) ton/yr 0.17 0.17 0.17 0.17 0.17 0.16 3.27 2.53 0.40 Unit	Reference AP-42, Sec. 1.5 w/ s.f. (applicant-requested) AP-42, Sec. 1.5 w/ s.f. (applicant-requested) AP-42, Sec. 1.5 w/ s.f. (applicant-requested) AP-42, Sec. 1.5 sw/ s.f. (applicant-requested) AP-42, Sec. 1.5 sw/ s.f. (applicant-requested) AP-42, Sec. 1.5 sw/ s.f. (applicant-requested) AP-42, Sec. 1.5 w/ s.f. (applicant-requested) AP-42, Sec. 1.5 w/ s.f. (applicant-requested) AP-42, Sec. 1.5 w/ s.f. (applicant-requested) Compare to Source Testing Ib/hr Using Sou	Notes S.f. = safety factor S = 15.5 gr/100 cu.ft. (185 ppn ton/yr

		of Environmental Prote f Air Pollution Control	ection		Facility Name:	ARRICK GOLDSTR	UKE		By: PAT MOHN	Date: 5/21/2013
		OLLUTANTS			Project Name:	RIL CIRCUIT OPT			Air Case:	REVISION
FIN:		NS CALCULATIONS Permit Number:	AP1041-2805		System:	EN HEATER 1 (NA	une lare i strata attentamente della constitución		XXXX XXXX	TYPE OF AP
	7,0003	YES/NO	Notes		KESIN KEU	EN FIEATER I (INA	(TORAL GAS)	l		
Alt Ope	erating Scenario?	NO	Primary fuel is natura						Approved:	Date: 7/20/103
	Revision?	YES	Add new Resin Rege	n Heater I w/ natu	ral gas as primary fuel.					
. EMISSION UNIT(S):			Location							
	\$2.XXX/		NAD 8	3 (m)		1		1	Year	
System 143 A		Description RESIN REGEN HEATER 1	North 4,536,295	East 554,681	Manufacturer	Model #	Serial #	<u>SCC #</u> 1-01-006-02	Manufactured	
	1	NATURAL GAS)	74	337,001		1				
II. CONTROL DEVICE(S):										
				Pollutant			Control(s) Manufacturer	s Guarantee		
<u>.</u>	tack Parameters			PM	Туре	Control (%)	Factor	<u>Unit</u>	<u>Notes</u>	
leight (ft): Diameter (ft):	13 12	36 1.33		PM10 PM2.5						
'emp (°F): Exit Vel (fps):	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	400 40.6		SO2 NOX						-
/ol (ACFM): /ol (DSCFM):		3,400 2,100		co voc						
	***		****	Pb Hg						_
				H2S HAPS						
II. Operating Parameters:						10				· · · · · · · · · · · · · · · · · · ·
Operating Parameters: Operating Hours hr/day	hr/yr	Throu Hourly	ughput/Fuel Usage	17	Heat Input		Agmusl	Uganda.	Power Output	Heat Content (BTU/scf)
117day 24	8,760	4,902.0	Annual 42,941,520.0	Unit scf	Fuel Type Natural Gas	Hourly 5.0	Annual 43,800.35	Hourly	<u>Unit</u>	(BTU/scf)
	erskess 12 F 17				or calculating to and from throughput/fuel usage and h		ontent values. See below for	typical values.		T,L.
		Coal (BTU/lb)	Diesel (BTU/gal)	Gasoline (BTU/gal)	Natural Gas (BTU/scf)	Propane (BTU/gallon)			vo. 1 0 1 1 1 1	
	Default	13,000	140,000	114,000	1,020 from the second s	90,500	1		If used a formula to calculate: TYPE FORMULA	
V. Emission Limit Calculations			1	Uncontroll			1			
Pollutant	Othe Factor	r Emission Factor Unit	Actual Emiss Factor	Unit	Emission Limit lb/hr	ton/yr	Reference		Notes	
PM PM10			0.011	lb/mmbtu_ lb/mmbtu	0.06 0.06	0.24	AP-42, Sec. 1.4 w/ s.f. (app AP-42, Sec. 1.4 w/ s.f. (app			
PM2.5 SO2			0.011	lb/mmbtu lb/mmbtu	0.06 0.09	0.24 0.37	AP-42, Sec. 1.4 w/s.f. (app AP-42, Sec. 1.4 w/s.f. (app	licant-requested)		
NOX CO			0.213	lb/mmbtu lb/mmbtu	1.07 0.82	4.66	AP-42, Sec. 1.4 w/s.f. (app AP-42, Sec. 1.4 w/s.f. (app	licant-requested)		
voc			0,026	lb/mmbtu	0.13	0.57	AP-42, Sec. 1.4 w/ s.f. (app			
					Formula for Uncontrolled Limit (lb/hr):				
	T	B. J. P.	1 0	(0/G · 1)	Controlled		1	(1/ Q D		
Pollutant	Factor	ntrolled Factor Unit	Controlled Factor	Unit	Emission Limit lb/hr	ton/yr	Emission Limit lb/hr	ton/yr	Reference	Notes
PM PM10	NAME OF THE OWNER, OWNE		0.011	lb/mmbtu lb/mmbtu			0.06 0.06	0.24 0.24	AP-42, Sec. 1.4 w/ s.f. (applicant-requested) AP-42, Sec. 1.4 w/ s.f. (applicant-requested)	
PM2.5 SO2			0.011	lb/mmbtu lb/mmbtu			0.06	0.24 0.37	AP-42, Sec. 1.4 w/ s.f. (applicant-requested) AP-42, Sec. 1.4 w/ s.f. (applicant-requested)	
NOX CO			0.213 0.164	lb/mmbtu lb/mmbtu			1.07 0.82	4.66 3.59	AP-42, Sec. 1.4 w/ s.f. (applicant-requested) AP-42, Sec. 1.4 w/ s.f. (applicant-requested)	
VOC Pb			0.026	lb/mmbtu			0.13	0.57	AP-42, Sec. 1.4 w/ s.f. (applicant-requested)	
Hg H2S	-									
					Formula for Controlled Limit(lb	/hr):				
					Permitted Emission Limits	· · · · · · · · · · · · · · · · · · ·			<u> </u>	· · · · · · · · · · · · · · · · · · ·
Pollutant	En Factor	nission Factor Unit	lb/hr	ton/yr	Reference	Notes	Factor	Ce Unit	ompare to Source Testing lb/hr	ton/yr
PM PM10	0.011 0.011	lb/mmbtu lb/mmbtu	0.06	0.24	AP-42, Sec. 1.4 w/ s.f. (applicant-requested) AP-42, Sec. 1.4 w/ s.f. (applicant-requested)					
PM2.5 SO2	0.011 0.017	lb/mmbtu lb/mmbtu	0.06	0.24	AP-42, Sec. 1.4 w/ s.f. (applicant-requested) AP-42, Sec. 1.4 w/ s.f. (applicant-requested)					
NOX CO	0.213 0.164	lb/mmbtu lb/mmbtu	1.07 0.82	4.66 3.59	AP-42, Sec. 1.4 w/ s.f. (applicant-requested) AP-42, Sec. 1.4 w/ s.f. (applicant-requested)					
voc	0.026	lb/mmbtu	0.13	0.57	AP-42, Sec. 1.4 w/ s.f. (applicant-requested)					
. Green House Gases							<u> </u>		Heiro Course Testino	
CO2	Factor	Unit lb/MMBtu	lb/hr 585.0	ton/yr 2,562.3	GWP Multiplier	GWP lb/hr 585.0	GWP ton/yr 2,562.3	Reference	Using Source Testing GWP lb/hr	GWP ton/yr
CH4 N2O	0.0022	lb/MMBtu lb/MMBtu	0.0	0.0	21	0.2	2,562.3 1.0 4.1			
N2O		IO/MINIDIU	U,U	1 0.0	310 TOTAL CO2e:	0.9 586	4.1 2,567	0		1
I. Hazardous Air Pollutants:										
					Hazardous Air Pollutants					
HAP Pollutant		Jncontrolled Unit	Contro		Uncontrolled	Paris No. 6 CO	Control		Removal Factor	Calculation Reference
OTALS:	Factor	Unit	Factor	Unit	Emission (lb/hr) 0.0004	Emission (ton/yr) 0.0018	Emission (lb/hr) 0.0004	Emission (ton/yr) 0.0018	1	AP42 Table 1.4-3
2-Methylnaphthalene 3-Methylchloranthrene	2.35E-08 1.76E-09	lb/MMBtu lb/MMBtu	2.35E-08 1.76E-09	lb/MMBtu lb/MMBtu	1.18E-07 8.82E-09	5.15E-07 3.86E-08	1.18E-07 8.82E-09	5.15E-07 3.86E-08		AP42 Table 1.4-3 AP42 Table 1.4-3
7,12-Dimethylbenz(a)anthracene Acenaphthene	1.76E-09	lb/MMBtu lb/MMBtu	1.57E-08 1.76E-09	lb/MMBtu lb/MMBtu	7.84E-08 8.82E-09	3.44E-07 3.86E-08	7.84E-08 8.82E-09	3.44E-07 3.86E-08		AP42 Table 1.4-3 AP42 Table 1.4-3
Acenaphthylene Anthracene	1.76E-09 2.35E-09	lb/MMBtu lb/MMBtu	1.76E-09 2.35E-09	lb/MMBtu lb/MMBtu	8.82E-09 1.18E-08	3.86E-08 5.15E-08	8.82E-09 1.18E-08	3.86E-08 5.15E-08		AP42 Table 1.4-3 AP42 Table 1.4-3
Benz(a)anthracene Benzene	1,76E-09 2,06E-06	lb/MMBtu lb/MMBtu	1.76E-09 2.06E-06	lb/MMBtu lb/MMBtu	8.82E-09 1.03E-05	3.86E-08 4.51E-05	8.82E-09 1.03E-05	3.86E-08 4.51E-05		AP42 Table 1.4-3 AP42 Table 1.4-3
Benzo(a)pyrene Benzo(b)fluoranthene	1 18E-09 1 76E-09	Ib/MMBtu Ib/MMBtu	1.18E-09 1.76E-09	lb/MMBtu lb/MMBtu	5,88E-09 8,82E-09	2.58E-08 3.86E-08	5.88E-09 8.82E-09	2.58E-08 3.86E-08		AP42 Table 1.4-3 AP42 Table 1.4-3 AP42 Table 1.4-3
Benzo(g,h,i)perylene	1.76E-09	lb/MMBtu	1.76E-09	lb/MMBtu	8.82E-09	3.86E-08	8.82E-09	3.86E-08		AP42 Table 1.4-3
Benzo(k)fluoranthene Chrysene	2.06E-06 1.76E-09	lb/MMBtu lb/MMBtu	2.06E-06 1.76E-09	lb/MMBtu lb/MMBtu	1.03E-05 8.82E-09	4.51E-05 3.86E-08	1.03E-05 8.82E-09	4.51E-05 3.86E-08		AP42 Table 1.4-3 AP42 Table 1.4-3
Dibenzo(a,h)anthracene Dichlorobenzene	1.18E-09 1.18E-06	lb/MMBtu lb/MMBtu	1.18E-09 1.18E-06	lb/MMBtu lb/MMBtu	5.88E-09 5.88E-06	2,58E-08 2,58E-05	5.88E-09 5.88E-06	2.58E-08 2.58E-05		AP42 Table 1.4-3 AP42 Table 1.4-3
Fluoranthene Fluorene	2:94E-09 2:75E-09	lb/MMBtu lb/MMBtu	2.94E-09 2.75E-09	lb/MMBtu lb/MMBtu	1.47E-08 1.37E-08	6,44E-08 6,01E-08	1.47E-08 1.37E-08	6,44E-08 6.01E-08		AP42 Table 1.4-3 AP42 Table 1.4-3
Formaldehyde	7.35E-05	lb/MMBtu	7.35E-05	lb/MMBtu	3.68E-04	1.61E-03	3.68E-04	1.61E-03		AP42 Table 1.4-3 PERF 1997, AP42
Hexane Indeno(1,2,3-cd)pyrene	4,22E-07 1,76E-09	lb/MMBtu	4.22E-07 1.76E-09	lb/MMBtu lb/MMBtu	2.11E-06	9.24E-06	2.11E-06	9.24E-06 3.86E-08		poor factor rating AP42 Table 1.4-3
Napthalene	5.98E-07	lb/MMBtu	5.98E-07	lb/MMBtu	8.82E-09 2.99E-06	3.86E-08 1.31E-05	8.82E-09 2.99E-06	1.31E-05	-	AP42 Table 1.4-3
Phenanathrene	1.67E-08 4 90E-09	lb/MMBtu lb/MMBtu	1.67E-08 4.90E-09	lb/MMBtu lb/MMBtu	8.33E-08 2.45E-08	3.65E-07 1.07E-07	8.33E-08 2.45E-08	3.65E-07 1.07E-07		AP42 Table 1.4-3 AP42 Table 1.4-3
Pyrene Toluene	3.33E-06	lb/MMBtu	3.33E-06	lb/MMBtu	1.67E-05	7.30E-05	1.67E-05	7.30E-05	1	AP42 Table 1.4-3

	Neva	ada Division of Environm Bureau of Air Pollutio			Facility Name:	PARRION COLDSTRING			By: PAT MOHN	Date: 5/21/2013
					Project Name:	BARRICK GOLDSTRIKE			: . Air C	Case:
		POLLUTANT EMISSIONS CALCUL				RIL CIRCUIT OPTC			7349 XXXX	REVISION TYPE OF AP
FIN:	A0005	Permit Number:	AP1041-2805		System:	RESIN REGEN HEATER I (PROPANE)			XXXX	TYPE OF AP
		VERNO						1		In.t.
It Operati	ing Scenario?	YES/NO YES	Notes Propane as alternativ	e fuel for Resin Rege	en Heater (Approved:	Date: 7/26/2013
	Revision?	YES			ne as the alternative fuel.					
MISSION	N UNIT(S):			Maria (maria (maria / 1968)						
			Location							1
	S2.XXX/	1	NAD 8	(m)				I	Year	
System	PF1.XXX	Description	North	East	Manufacturer	Model #	Serial #	SCC#	Manufactured	
143B	S2.363P	RESIN REGEN HEATER I (PROPANE)	4,536,295	554,681				1-03-010-02	<u>圣</u>	
ONTRO	L DEVICE(S	5):				Cor	ntrol(s)		1	
				Pollutant	Туре	Control (%)	Manufacturer' Factor	s Guarantee <u>Unit</u>	Notes	,
ht (ft):	Stack P	Parameters 36		PM PM10						-
eter (ft):		1.33	Ē	PM2.5						
(°F):		400		SO2						
/el (fps): ACFM):		40.6 3,400		NOX CO					1	
OSCFM):	:	2,100		VOC				1 11 11 11 11 11 11 11 11 11 11 11 11 1		
				Pb Hg						=
				H2S						
				HAPS (4	1 115 975		<u> </u>
Operating Operatin	g Parameters 1g Hours		oughput/Fuel Usage			Heat Input (MMBtu)		1	Power Output	Heat Content
/day 24	hr/yr 8,760	Hourly 55.0	Annual 481,800.0	<u>Unit</u> gal	<u>Fuel Type</u> Propane	Hourly 5.0	Annual 44,084,70	<u>Hourly</u>	<u>Unit</u>	(BTU/gallon) 91,500
										<u> </u>
		Coal	Diesel	Gasoline	Note: The Conversion section is used for calculating to Natural Gas	and from throughput/fuel usage and heat input usi Propane	ing heat content values. See b	elow for typical values.		
		(BTU/lb)	(BTU/gal)	(BTU/gal)	(BTU/scf)	(BTU/gallon)				
ļ	Default	13,000	140,000	114,000	1,020	91,500			If used a formula to calculate: TYPE	FORMULA
mission	Limit Calcula	ations:								
		her Emission Factor	Actual Emis	sion Factor	Uncontrolled Emission	Limit				
lutant	Factor	Unit	Factor	Unit	lb/hr	ton/yr	Reference		Notes	
PM M10			1,010	lb/1000 gallon lb/1000 gallon	0.06 0.06	0.24	AP-42, Sec. 1.5 w/ s.f. (appl AP-42, Sec. 1.5 w/ s.f. (appl		s.f. = safe S = 15.5 gr/100 c	
M2.5			1.010	lb/1000 gallon	0.06	0.24	AP-42, Sec. 1.5 w/ s.f. (appl		5 13.3 g/100 C	w.t. (105 ppmm)
502			1,550	lb/1000 gallon	0.09	0.37	AP-42, Sec. 1.5, SO2 = 0.10	0*S		
CO NOX			19.364 15.010	lb/1000 gallon lb/1000 gallon	1.07 0.83	4.66 3.62	AP-42, Sec. 1.5 w/ s.f. (appl AP-42, Sec. 1.5 w/ s.f. (appl			
oc [2,396	lb/1000 gallon	0.13	0.58	AP-42, Sec. 1.5 w/ s.f. (appl			
						Formula for Uncontrolled Limit (lb/hr):				
Т					Controlled				<u></u>	
İ	,				Emission	Limit	Emission Limit	t (%Control)		
llutant		Controlled Factor	Controlled Fact	or (%Control)	Liussion		lb/hr	4	Reference	
I	Factor	Controlled Factor Unit	Factor	Unit	lb/hr :	ton/yr		ton/yr		Notes
			Factor 1.010	Unit Ib/1000 gallon		ton/yr	0.06	0.24	AP-42, Sec. 1.5 w/ s.f. (applicant-requested)	s.f. = safety factor
/110 12.5			Factor 1.010 1.010 1.010	Unit Ib/1000 gallon Ib/1000 gallon Ib/1000 gallon		ton/yr	0.06 0.06 0.06	0,24 0.24 0.24	AP-42, Sec. 1.5 w/ s.f. (applicant-requested) AP-42, Sec. 1.5 w/ s.f. (applicant-requested) AP-42, Sec. 1.5 w/ s.f. (applicant-requested)	
110 12.5 O2			Factor 1.010 1.010 1.010 1.550	Unit lb/1000 gallon lb/1000 gallon lb/1000 gallon lb/1000 gallon		ton/yr	0.06 0.06 0.06 0.09	0.24 0.24 0.24 0.37	AP-42, Sec. 1.5 w/ s.f. (applicant-requested) AP-42, Sec. 1.5 w/ s.f. (applicant-requested) AP-42, Sec. 1.5 w/ s.f. (applicant-requested) AP-42, Sec. 1.5, SO2 = 0.10*S	s.f. = safety factor
M10 M2.5 O2 OX			Factor 1.010 1.010 1.010 1.550 19.364 15.010	Unit Ib/1000 gallon Ib/1000 gallon Ib/1000 gallon		ton/yr	0.06 0.06 0.06	0,24 0.24 0.24	AP-42, Sec. 1.5 w/ s.f. (applicant-requested) AP-42, Sec. 1.5 w/ s.f. (applicant-requested) AP-42, Sec. 1.5 w/ s.f. (applicant-requested)	s.f. = safety factor
M10 M2.5 GO2 IOX			Factor 1.010 1.010 1.010 1.550 19.364	Unit lb/1000 gallon lb/1000 gallon lb/1000 gallon lb/1000 gallon lb/1000 gallon		ton/yr	0.06 0.06 0.06 0.09 1.07	0.24 0.24 0.24 0.37 4.66	AP-42, Sec. 1.5 w/ s.f. (applicant-requested)	s.f. = safety factor
M10 M2.5 O2 OX			Factor 1.010 1.010 1.010 1.550 19.364 15.010	Unit lb/1000 gallon lb/1000 gallon lb/1000 gallon lb/1000 gallon lb/1000 gallon lb/1000 gallon		Formula for Controlled Limit(lb/hr):	0.06 0.06 0.06 0.09 1.07 0.83	0.24 0.24 0.24 0.37 4.66 3.62	AP-42, Sec. 1.5 w/ s.f. (applicant-requested)	s.f. = safety factor
M10 M2.5 O2 OX	Factor	Unit	Factor 1.010 1.010 1.010 1.550 19.364 15.010	Unit lb/1000 gallon lb/1000 gallon lb/1000 gallon lb/1000 gallon lb/1000 gallon lb/1000 gallon			0.06 0.06 0.06 0.09 1.07 0.83	0.24 0.24 0.24 0.37 4.66 3.62	AP-42, Sec. 1.5 w/ s.f. (applicant-requested) AP-42, Sec. 1.5 w/ s.f. (applicant-requested) AP-42, Sec. 1.5 w/ s.f. (applicant-requested) AP-42, Sec. 1.5, SO2 = 0.10*S AP-42, Sec. 1.5 w/ s.f. (applicant-requested)	s.f. = safety factor
M10	Factor	Unit	Factor 1,010 1,010 1,010 1,010 1,550 19,364 15,010 2,396	Unit Ib/1000 gallon	lb/hr	Formula for Controlled Limit(lb/hr): Permitted Emission Limits	0.06 0.06 0.06 0.09 1.07 0.83 0.13	0.24 0.24 0.24 0.37 4.66 3.62 0.58	AP-42, Sec. 1.5 w/ s.f. (applicant-requested) AP-42, Sec. 1,5 w/ s.f. (applicant-requested) AP-42, Sec. 1.5 w/ s.f. (applicant-requested) AP-42, Sec. 1.5, SO2 = 0.10*S AP-42, Sec. 1.5 w/ s.f. (applicant-requested) Compare to Source Testing	s.f. = safety factor S = 15.5 gr/100 cu.ft. (185 ppm
M10 M2.5 CO COC COC COC	Factor	Unit Emission Factor Unit 1b/1000 gallon	Factor 1.010 1.010 1.010 1.550 19.364 15.010 2.396	Unit 1b/1000 gallon	lb/hr Reference AP-42, Sec. 1.5 w/ s.f. (applicant-requested)	Formula for Controlled Limit(lb/hr): Permitted Emission Limits Notes s.f. = safety factor	0.06 0.06 0.06 0.09 1.07 0.83	0.24 0.24 0.24 0.37 4.66 3.62	AP-42, Sec. 1.5 w/ s.f. (applicant-requested) AP-42, Sec. 1.5 w/ s.f. (applicant-requested) AP-42, Sec. 1.5 w/ s.f. (applicant-requested) AP-42, Sec. 1.5, SO2 = 0.10*S AP-42, Sec. 1.5 w/ s.f. (applicant-requested)	s.f. = safety factor
M10 M2.5 M2.5 M2.5 M2 M2 M2 M3 M3 M4 M10 M10	Factor 1.010 1.010	Unit Emission Factor Unit 1b/1000 gallon 1b/1000 gallon	Factor 1,010 1,010 1,010 1,550 19,364 15,010 2,396	Unit 1b/1000 gallon	Reference AP-42, Sec. 1.5 w/ s.f. (applicant-requested) AP-42, Sec. 1.5 w/ s.f. (applicant-requested)	Formula for Controlled Limit(lb/hr): Permitted Emission Limits Notes	0.06 0.06 0.06 0.09 1.07 0.83 0.13	0.24 0.24 0.24 0.37 4.66 3.62 0.58	AP-42, Sec. 1.5 w/ s.f. (applicant-requested) AP-42, Sec. 1,5 w/ s.f. (applicant-requested) AP-42, Sec. 1.5 w/ s.f. (applicant-requested) AP-42, Sec. 1.5, SO2 = 0.10*S AP-42, Sec. 1.5 w/ s.f. (applicant-requested) Compare to Source Testing	s.f. = safety factor S = 15.5 gr/100 cu.ft. (185 ppm
M10	Factor	Unit Emission Factor Unit 1b/1000 gallon	Factor 1.010 1.010 1.010 1.550 19.364 15.010 2.396	Unit 1b/1000 gallon	lb/hr Reference AP-42, Sec. 1.5 w/ s.f. (applicant-requested)	Formula for Controlled Limit(lb/hr): Permitted Emission Limits Notes s.f. = safety factor	0.06 0.06 0.06 0.09 1.07 0.83 0.13	0.24 0.24 0.24 0.37 4.66 3.62 0.58	AP-42, Sec. 1.5 w/ s.f. (applicant-requested) AP-42, Sec. 1,5 w/ s.f. (applicant-requested) AP-42, Sec. 1.5 w/ s.f. (applicant-requested) AP-42, Sec. 1.5, SO2 = 0.10*S AP-42, Sec. 1.5 w/ s.f. (applicant-requested) Compare to Source Testing	s.f. = safety factor S = 15.5 gr/100 cu.ft. (185 ppm
M10	Factor 1.010 1.010	Unit Emission Factor Unit 1b/1000 gallon 1b/1000 gallon	Factor 1.010 1.010 1.010 1.550 19.364 15.010 2.396 1b/hr 0.06 0.06 0.06	Unit 1b/1000 gallon	Reference AP-42, Sec. 1.5 w/ s.f. (applicant-requested) AP-42, Sec. 1.5 w/ s.f. (applicant-requested) AP-42, Sec. 1.5 w/ s.f. (applicant-requested)	Formula for Controlled Limit(lb/hr): Permitted Emission Limits Notes s.f. = safety factor	0.06 0.06 0.06 0.09 1.07 0.83 0.13	0.24 0.24 0.24 0.37 4.66 3.62 0.58	AP-42, Sec. 1.5 w/ s.f. (applicant-requested) AP-42, Sec. 1,5 w/ s.f. (applicant-requested) AP-42, Sec. 1.5 w/ s.f. (applicant-requested) AP-42, Sec. 1.5, SO2 = 0.10*S AP-42, Sec. 1.5 w/ s.f. (applicant-requested) Compare to Source Testing	s.f. = safety factor S = 15.5 gr/100 cu.ft. (185 ppm
PM M10 M2.5 SO2	Factor Factor 1.010 1.010 1.550	Unit Emission Factor Unit 1b/1000 gallon 1b/1000 gallon 1b/1000 gallon	Factor 1,010 1,010 1,010 1,010 1,550 19,364 15,010 2,396 1b/hr 0,06 0,06 0,06 0,09	Unit 1b/1000 gallon 2 gallon 3	Reference AP-42, Sec. 1.5 w/ s.f. (applicant-requested) AP-42, Sec. 1.5 w/ s.f. (applicant-requested) AP-42, Sec. 1.5 w/ s.f. (applicant-requested) AP-42, Sec. 1.5, SO2 = 0.10*S	Formula for Controlled Limit(lb/hr): Permitted Emission Limits Notes s.f. = safety factor	0.06 0.06 0.06 0.09 1.07 0.83 0.13	0.24 0.24 0.24 0.37 4.66 3.62 0.58	AP-42, Sec. 1.5 w/ s.f. (applicant-requested) AP-42, Sec. 1,5 w/ s.f. (applicant-requested) AP-42, Sec. 1.5 w/ s.f. (applicant-requested) AP-42, Sec. 1.5, SO2 = 0.10*S AP-42, Sec. 1.5 w/ s.f. (applicant-requested) Compare to Source Testing	s.f. = safety factor S = 15.5 gr/100 cu.ft. (185 ppm
willo	Factor Factor 1.010 1.010 1.550 19.364	Emission Factor Unit 1b/1000 gallon 1b/1000 gallon 1b/1000 gallon 1b/1000 gallon 1b/1000 gallon	Factor 1.010 1.010 1.010 1.550 19.364 15.010 2.396 1b/hr 0.06 0.06 0.06 0.09 1.07 0.82	Unit 1b/1000 gallon 2d 2d 0.24 0.24 0.24 0.24 0.37 4.66	Reference AP-42, Sec. 1.5 w/ s.f. (applicant-requested)	Formula for Controlled Limit(lb/hr): Permitted Emission Limits Notes s.f. = safety factor S = 15.5 gr/100 cu.ft. (185 ppmw) Requested permit limits slightly different than calc'd above due to rounding error. Requested annual permit limit slightly	0.06 0.06 0.06 0.09 1.07 0.83 0.13	0.24 0.24 0.24 0.37 4.66 3.62 0.58	AP-42, Sec. 1.5 w/ s.f. (applicant-requested) AP-42, Sec. 1,5 w/ s.f. (applicant-requested) AP-42, Sec. 1.5 w/ s.f. (applicant-requested) AP-42, Sec. 1.5, SO2 = 0.10*S AP-42, Sec. 1.5 w/ s.f. (applicant-requested) Compare to Source Testing	s.f. = safety factor S = 15.5 gr/100 cu.ft. (185 ppm
M10 M2.5 GO2 GOX GO /OC lutant PM M10 W2.5 GO2 GOX GOO	Factor Factor 1.010 1.010 1.550 19.364	Emission Factor Unit 1b/1000 gallon 1b/1000 gallon 1b/1000 gallon 1b/1000 gallon	Factor 1.010 1.010 1.010 1.550 19.364 15.010 2.396 1b/hr 0.06 0.06 0.06 0.09 1.07	Unit 1b/1000 gallon 2d 0.24 0.24 0.24 0.37 4.66	Reference AP-42, Sec. 1.5 w/ s.f. (applicant-requested)	Formula for Controlled Limit(lb/hr): Permitted Emission Limits Notes s.f. = safety factor S = 15.5 gr/100 cu.ft. (185 ppmw) Requested permit limits slightly different than calc'd above due to rounding error.	0.06 0.06 0.06 0.09 1.07 0.83 0.13	0.24 0.24 0.24 0.37 4.66 3.62 0.58	AP-42, Sec. 1.5 w/ s.f. (applicant-requested) AP-42, Sec. 1,5 w/ s.f. (applicant-requested) AP-42, Sec. 1.5 w/ s.f. (applicant-requested) AP-42, Sec. 1.5, SO2 = 0.10*S AP-42, Sec. 1.5 w/ s.f. (applicant-requested) Compare to Source Testing	s.f. = safety factor S = 15.5 gr/100 cu.ft. (185 ppm
M10 M2.5 O2 OX CO W110 M110 M2.5 O2 OX CO	Factor Factor 1.010 1.010 1.550 19.364	Emission Factor Unit 1b/1000 gallon 1b/1000 gallon 1b/1000 gallon 1b/1000 gallon 1b/1000 gallon	Factor 1.010 1.010 1.010 1.550 19.364 15.010 2.396 1b/hr 0.06 0.06 0.06 0.09 1.07 0.82	Unit 1b/1000 gallon 2d 2d 0.24 0.24 0.24 0.24 0.37 4.66	Reference AP-42, Sec. 1.5 w/ s.f. (applicant-requested)	Formula for Controlled Limit(lb/hr): Permitted Emission Limits Notes s.f. = safety factor S = 15.5 gr/100 cu.ft. (185 ppmw) Requested permit limits slightly different than calc'd above due to rounding error. Requested annual permit limit slightly different than calc'd above due to rounding	0.06 0.06 0.06 0.09 1.07 0.83 0.13	0.24 0.24 0.24 0.37 4.66 3.62 0.58	AP-42, Sec. 1.5 w/ s.f. (applicant-requested) AP-42, Sec. 1,5 w/ s.f. (applicant-requested) AP-42, Sec. 1.5 w/ s.f. (applicant-requested) AP-42, Sec. 1.5, SO2 = 0.10*S AP-42, Sec. 1.5 w/ s.f. (applicant-requested) Compare to Source Testing	s.f. = safety factor S = 15.5 gr/100 cu.ft. (185 ppm
M10 A2.5 O2 OX	Factor Factor 1.010 1.010 1.550 19.364 15.010 2.396	Emission Factor Unit 1b/1000 gallon 1b/1000 gallon 1b/1000 gallon 1b/1000 gallon 1b/1000 gallon	Factor 1.010 1.010 1.010 1.550 19.364 15.010 2.396 1b/hr 0.06 0.06 0.06 0.09 1.07 0.82	Unit 1b/1000 gallon 2d 2d 0.24 0.24 0.24 0.24 0.37 4.66	Reference AP-42, Sec. 1.5 w/ s.f. (applicant-requested)	Formula for Controlled Limit(lb/hr): Permitted Emission Limits Notes s.f. = safety factor S = 15.5 gr/100 cu.ft. (185 ppmw) Requested permit limits slightly different than calc'd above due to rounding error. Requested annual permit limit slightly different than calc'd above due to rounding	0.06 0.06 0.06 0.09 1.07 0.83 0.13	0.24 0.24 0.24 0.37 4.66 3.62 0.58	AP-42, Sec. 1.5 w/ s.f. (applicant-requested) Compare to Source Testing Ib/hr	s.f. = safety factor S = 15.5 gr/100 cu.ft. (185 ppm ton/yr
M10 (22.5 O2 O2 OX	Factor Factor 1.010 1.010 1.550 19.364	Emission Factor Unit 1b/1000 gallon 1b/1000 gallon 1b/1000 gallon 1b/1000 gallon 1b/1000 gallon	Factor 1,010 1,010 1,010 1,010 1,010 1,550 19,364 15,010 2,396 15,010 2,396 1,07	Unit 1b/1000 gallon 2d 0.24 0.24 0.24 0.24 0.37 4.66 3.59	Reference AP-42, Scc. 1.5 w/ s.f. (applicant-requested) AP-42, Sec. 1.5 w/ s.f. (applicant-requested)	Formula for Controlled Limit(lb/hr): Permitted Emission Limits Notes S.f. = safety factor S = 15.5 gr/100 cu.ft. (185 ppmw) Requested permit limits slightly different than calc'd above due to rounding error. Requested annual permit limit slightly different than calc'd above due to rounding error.	0.06 0.06 0.06 0.09 1.07 0.83 0.13	0.24 0.24 0.24 0.37 4.66 3.62 0.58	AP-42, Sec. 1.5 w/ s.f. (applicant-requested) Compare to Source Testing Ib/hr Using Source	s.f. = safety factor S = 15.5 gr/100 cu.ft. (185 ppm ton/yr
1410 (12.5 OC) (Factor Factor 1.010 1.010 1.010 1.550 19.364 15.010 2.396	Emission Factor Unit 1b/1000 gallon 1b/1000 gallon 1b/1000 gallon 1b/1000 gallon 1b/1000 gallon 1b/1000 gallon Ib/1000 gallon	Factor 1,010 1,010 1,010 1,010 1,010 1,550 19,364 15,010 2,396 15,010 2,396 1,07 0,86 0,06 0,06 0,09 1,07 0,82 0,13 1b/hr 699.5	Unit 1b/1000 gallon 24 0.24 0.24 0.37 4.66 3.59 0.57	Reference AP-42, Sec. 1.5 w/s.f. (applicant-requested) GWP Multiplier 1	Formula for Controlled Limit(lb/hr): Permitted Emission Limits Notes s.f. = safety factor S = 15.5 gr/100 cu.ft. (185 ppmw) Requested permit limits slightly different than calc'd above due to rounding error. Requested annual permit limit slightly different than calc'd above due to rounding error. GWP lb/hr 699.5	0.06 0.06 0.06 0.09 1.07 0.83 0.13 Factor	0.24 0.24 0.24 0.37 4.66 3.62 0.58	AP-42, Sec. 1.5 w/ s.f. (applicant-requested) Compare to Source Testing Ib/hr	s.f. = safety factor S = 15.5 gr/100 cu.ft. (185 ppm ton/yr
110 (12.5) 20 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	Factor Factor 1.010 1.010 1.010 1.550 19.364 15.010 2.396	Emission Factor Unit 1b/1000 gallon 1b/1000 gallon 1b/1000 gallon 1b/1000 gallon 1b/1000 gallon 1b/1000 gallon 1b/1000 gallon Unit 1b/MMBtu 1b/MMBtu	Factor 1,010 1,010 1,010 1,010 1,010 1,550 19,364 15,010 2,396 15,010 2,396 1,07	Unit 1b/1000 gallon 24 0.24 0.24 0.24 0.37 4.66 3.59 0.57	Reference AP-42, Sec. 1.5 w/ s.f. (applicant-requested) AP-42, Sec. 1.5 w/ s.f. (applicant-requested) GWP Multiplier 1 21	Formula for Controlled Limit(lb/hr): Permitted Emission Limits Notes S.f. = safety factor S = 15.5 gr/100 cu.ft. (185 ppmw) Requested permit limits slightly different than calc'd above due to rounding error. Requested annual permit limit slightly different than calc'd above due to rounding error. GWP lb/hr 699.5 0.7	GWP ton/yr 3,063,9 3,2	0.24 0.24 0.24 0.37 4.66 3.62 0.58	AP-42, Sec. 1.5 w/ s.f. (applicant-requested) Compare to Source Testing Ib/hr Using Source	s.f. = safety factor S = 15.5 gr/100 cu.ft. (185 ppn ton/yr
M10 (12.5 O2	Factor Factor 1.010 1.010 1.010 1.550 19.364 15.010 2.396	Emission Factor Unit 1b/1000 gallon 1b/1000 gallon 1b/1000 gallon 1b/1000 gallon 1b/1000 gallon 1b/1000 gallon Ib/1000 gallon	Factor 1,010 1,010 1,010 1,010 1,010 1,550 19,364 15,010 2,396 15,010 2,396 1,07 0,86 0,06 0,06 0,09 1,07 0,82 0,13 1b/hr 699.5	Unit 1b/1000 gallon 24 0.24 0.24 0.37 4.66 3.59 0.57	Reference AP-42, Sec. 1.5 w/s.f. (applicant-requested) GWP Multiplier 1	Formula for Controlled Limit(lb/hr): Permitted Emission Limits Notes s.f. = safety factor S = 15.5 gr/100 cu.ft. (185 ppmw) Requested permit limits slightly different than calc'd above due to rounding error. Requested annual permit limit slightly different than calc'd above due to rounding error. GWP lb/hr 699.5	0.06 0.06 0.06 0.09 1.07 0.83 0.13 Factor	0.24 0.24 0.24 0.37 4.66 3.62 0.58	AP-42, Sec. 1.5 w/ s.f. (applicant-requested) Compare to Source Testing Ib/hr Using Source	s.f. = safety factor S = 15.5 gr/100 cu.ft. (185 ppn ton/yr
1410 (12.5) (Factor Factor 1.010 1.010 1.010 1.550 19.364 15.010 2.396	Emission Factor Unit 1b/1000 gallon 1b/1000 gallon 1b/1000 gallon 1b/1000 gallon 1b/1000 gallon 1b/1000 gallon 1b/1000 gallon Unit 1b/MMBtu 1b/MMBtu	Factor 1,010 1,010 1,010 1,010 1,010 1,550 19,364 15,010 2,396 15,010 2,396 1,07	Unit 1b/1000 gallon 24 0.24 0.24 0.24 0.37 4.66 3.59 0.57	Reference AP-42, Sec. 1.5 w/ s.f. (applicant-requested) AP-42, Sec. 1.5 w/ s.f. (applicant-requested) GWP Multiplier 1 21 310-	Formula for Controlled Limit(lb/hr): Permitted Emission Limits Notes s.f. = safety factor S = 15.5 gr/100 cu.ft. (185 ppmw) Requested permit limits slightly different than calc'd above due to rounding error. Requested annual permit limit slightly different than calc'd above due to rounding error. GWP lb/hr 699.5 0.7 2.0	GWP ton/yr 3,063,9 3.2 \$.90	0.24 0.24 0.24 0.37 4.66 3.62 0.58 Unit	AP-42, Sec. 1.5 w/ s.f. (applicant-requested) Compare to Source Testing Ib/hr Using Source	s.f. = safety factor S = 15.5 gy/100 cu.ft. (185 ppn ton/yr

		sion of Environm au of Air Pollution			Facility Name:	BARRICK GOLDSTR	IKE		By: PAT MOHN	Date: 5/21/2013
		POLLUTANTS	.		Project Name:	RIL CIRCUIT OPT	C		7349	Air Case: REVISION
		SSIONS CALCUL	ATIONS		System:	**************************************			XXXX	TYPE OF AP
FIN:	A0005	Permit Number:			23	RIL EMERGENCY GENE	RATUR			. '
Alt One	rating Scenario?	YES/NO NO	Notes						Approved:	Date: 7/214/201
An Oper	Revision?	YES	Add new diesel gene	erator.						<u> </u>
MISSION UN	NIT(S):			2000年1月 年1日						
			Locatio NAD						Year	1
	S2.XXX/									
System 144	PF1.XXX S2.364	Description RIL EMERGENCY	North 4,536,292	East 554,548	Manufacturer CAT	Model # 3516C	Serial #	SCC # 2-02-004-01	Manufactured 2013	
	32.304	GENERATOR	4,330,292	,34,348	CAI	33100			2013	
CONTROL D	FVICE(S).									
CONTROLD	E v ICE(S).					Contro				
				Pollutant	<u>Type</u>	Control (%)	<u>Manuractur</u> <u>Factor</u>	er's Guarantee <u>Unit</u>	Notes	
nt (ft):	Stack Parameters	<u>s</u> - 15	ŧ	PM PM10				<u> </u>		-
eter (ft):		1.0	# # #	PM2.5						
(°F): el (fps):	2.65 pain 	915 416		SO2 NOX						
CFM): DSCFM):		19,600 7,555		CO VOC						-
55C1 W1).		5 5999		Pb	And the second s					
				Hg H2S						-
				HAPS						1
perating Pa								1		1
Operating hr/day	hr/yr	<u>Hourly</u>	hroughput/Fuel Usage Annual	<u>Unit</u>	<u>He</u> <u>Fuel Type</u>	at Input (MMBtu) <u>Hourly</u>	<u>Annual</u>	Power O Hourly	<u>Unit</u>	Heat Content (BTU/gal)
24	100	184.3	18,430.0	gal	Diesel	25.44	2,543.34	3,634	hp .	138,000
assystem jagan - ilg	a grafosja A.E.S.S.						1		vokome sepretista si a car	· ^-L
	ŀ	Coal (BTU/lb)	Diesel (BTU/gal)	Gasoline (BTU/gal)	Natural Gas (BTU/scf)	Propane (BTU/gallon)				
	Default	13,000	138,000	114,000	1,020	90,500	1	If used a formu	la to calculate: T	YPE FORMULA
mission Lim	nit Calculations:			I [
	Other Er	nission Factor	Actual Emis	<u>Unconta</u> ssion Factor	olled Emission Limi	t	-			
Pollutant PM	Factor	Unit	Factor 0.04725	Unit lb/mmbtu	lb/hr 1.20	ton/yr 0.06	Reference 40CFR89.112, Tier 2, >5	60 HP	Notes (NSPS St	abpart IIII) R 60.4202(b)(2)
PM10			0.04725	lb/mmbtu	1,20	0.06	40CFR89.112, Tier 2, >5	60 HP	40CFF	R 60.4202(b)(2)
PM2.5 SO2			0.04725	lb/mmbtu lb/mmbtu	1.20 0.04	0.06 0.002	40CFR89.112, Tier 2, >5 ULSD, 15 ppmw S (40Cl	_		R 60.4202(b)(2) FR 60.4207(b)
NOX CO			1.5022 0.8219	lb/mmbtu lb/mmbtu	38.22 20.91	1.91 1.05	40CFR89.112, Tier 2, >5 40CFR89.112, Tier 2, >5			R 60.4202(b)(2) R 60.4202(b)(2)
voc			0,3054	lb/mmbtu	7.77	0.39	40CFR89.112, Tier 1, >5			EF than AP-42
					Formula for Uncontrolled Lin	nit (lb/hr):				
	- T				Controlled				·	
D.H.	1	olled Factor	Controlled Fact	•	Emission Limi		1	nit (%Control)	D. C.	N
Pollutant PM	Factor	Unit	Factor 0.04725	Unit lb/mmbtu	lb/hr	ton/yr	lb/hr 1.20	ton/yr 0.06		Notes Ti 40CFR 60.4202(t
PM10 PM2.5			0.04725 0.04725	lb/mmbtu lb/mmbtu			1.20	0.06		F 40CFR 60.4202(1
SO2	<u> </u>			10/IIIIIOta				0.06	40CFR89 112.	
NOX			0.00153	lb/mmbtu			1.20 0.04	0.06 0.002		w 40CFR 60.4207
CO			0.00153 1.5022 0.8219	lb/mmbtu lb/mmbtu lb/mmbtu			1.20		ULSD, 15 ppmv 40CFR89.112,	w 40CFR 60.4207 Γι 40CFR 60.4202(I
CO VOC			1.5022	lb/mmbtu			1.20 0.04 38.22	0.002 1.91	ULSD, 15 ppmv 40CFR89.112, 7 40CFR89.112, 7	40CFR 60.4207 T 40CFR 60.4202(1 40CFR 60.4202(1
			1.5022 0.8219	lb/mmbtu lb/mmbtu	Formula for Controlled Lim	it(lb/hr):	1.20 0.04 38.22 20.91	0.002 1.91 1.05	ULSD, 15 ppmv 40CFR89.112, 7 40CFR89.112, 7	40CFR 60.4207 T 40CFR 60.4202(t 40CFR 60.4202(t
VOC			1.5022 0.8219	lb/mmbtu lb/mmbtu	Formula for Controlled Lim Permitted Emission Li		1.20 0.04 38.22 20.91	0.002 1.91 1.05	ULSD, 15 ppmv 40CFR89.112, 7 40CFR89.112, 7	40CFR 60.4207 T 40CFR 60.4202(t 40CFR 60.4202(t
VOC	Emiss Factor	sion Factor Unit	1.5022 0.8219 0.3054	lb/mmbtu lb/mmbtu lb/mmbtu	Permitted Emission L	mits	1.20 0.04 38.22 20.91 7.77	0.002 1.91 1.05	ULSD, 15 ppm 40CFR89.112, 40CFR89.112, 40CFR89.112,	w 40CFR 60.4207 T 40CFR 60.4202(t T 40CFR 60.4202(t T Higher EF than A
VOC Pollutant PM	Factor 0.04725	Unit lb/mmbtu	1.5022 0.8219 0.3054 lb/hr 1.20	lb/mmbtu lb/mmbtu lb/mmbtu ton/yr 0.06	Permitted Emission Li Reference 40CFR89.112, Tier 2, >560 HP	Notes 40CFR 60.4202(b)(2)	1.20 0.04 38.22 20.91	0.002 1.91 1.05 0.39	ULSD, 15 ppm 40CFR89.112, 140CFR89.112, 140C	40CFR 60.4207 T 40CFR 60.4202(1 40CFR 60.4202(1
Pollutant PM PM10 PM2.5	Factor 0.04725 0.04725 0.04725	Unit lb/mmbtu lb/mmbtu lb/mmbtu	1.5022 0.8219 0.3054 lb/hr 1.20 1.20	lb/mmbtu lb/mmbtu lb/mmbtu ton/yr 0.06 0.06 0.06	<u>Permitted Emission Li</u> Reference	Notes 40CFR 60.4202(b)(2) 40CFR 60.4202(b)(2) 40CFR 60.4202(b)(2)	1.20 0.04 38.22 20.91 7.77	0.002 1.91 1.05 0.39	ULSD, 15 ppm 40CFR89.112, 140CFR89.112, 140C	w 40CFR 60.4207 T 40CFR 60.4202(I T 40CFR 60.4202(I T Higher EF than A
Pollutant PM PM10 PM2.5 SO2	Factor 0.04725 0.04725 0.04725 0.04725 0.00153	Unit lb/mmbtu lb/mmbtu lb/mmbtu lb/mmbtu	1.5022 0.8219 0.3054 lb/hr 1.20 1.20 1.20 0.04	lb/mmbtu lb/mmbtu lb/mmbtu ton/yr 0.06 0.06 0.06 0.002	Permitted Emission Li Reference 40CFR89.112, Tier 2, >560 HP 40CFR89.112, Tier 2, >560 HP 40CFR89.112, Tier 2, >560 HP ULSD, 15 ppmw S (40CFR80.510(a))	Notes 40CFR 60.4202(b)(2) 40CFR 60.4202(b)(2) 40CFR 60.4202(b)(2) 40CFR 60.4207(b)	1.20 0.04 38.22 20.91 7.77	0.002 1.91 1.05 0.39	ULSD, 15 ppm 40CFR89.112, 140CFR89.112, 140C	w 40CFR 60.4207 T 40CFR 60.4202(T 40CFR 60.4202(T Higher EF than A
ollutant PM PM10 PM2.5 SO2 NOX CO	Factor 0.04725 0.04725 0.04725 0.00153 1.5022 0.8219	Unit Ib/mmbtu Ib/mmbtu Ib/mmbtu Ib/mmbtu Ib/mmbtu Ib/mmbtu Ib/mmbtu	1.5022 0.8219 0.3054 1b/hr 1.20 1.20 1.20 0.04 38.22 20.91	ton/yr 0.06 0.06 0.002 1.91	Permitted Emission Li Reference 40CFR89.112, Tier 2, >560 HP 40CFR89.112, Tier 2, >560 HP 40CFR89.112, Tier 2, >560 HP ULSD, 15 ppmw S (40CFR80.510(a)) 40CFR89.112, Tier 2, >560 HP 40CFR89.112, Tier 2, >560 HP	Notes 40CFR 60.4202(b)(2) 40CFR 60.4202(b)(2) 40CFR 60.4202(b)(2) 40CFR 60.4207(b) 40CFR 60.4202(b)(2) 40CFR 60.4202(b)(2)	1.20 0.04 38.22 20.91 7.77	0.002 1.91 1.05 0.39	ULSD, 15 ppm 40CFR89.112, 140CFR89.112, 140C	w 40CFR 60.4207 F 40CFR 60.4202(F) 40CFR 60.4202(F) Higher EF than A
Pollutant PM PM10 PM2.5 SO2 NOX	Factor 0.04725 0.04725 0.04725 0.00153 1.5022	Unit lb/mmbtu lb/mmbtu lb/mmbtu lb/mmbtu lb/mmbtu lb/mmbtu	1.5022 0.8219 0.3054 1b/hr 1.20 1.20 1.20 0.04 38.22	ton/yr 0.06 0.06 0.06 0.002	Permitted Emission Li Reference 40CFR89.112, Tier 2, >560 HP 40CFR89.112, Tier 2, >560 HP 40CFR89.112, Tier 2, >560 HP ULSD, 15 ppmw S (40CFR80.510(a)) 40CFR89.112, Tier 2, >560 HP	Notes 40CFR 60.4202(b)(2) 40CFR 60.4202(b)(2) 40CFR 60.4202(b)(2) 40CFR 60.4207(b) 40CFR 60.4202(b)(2)	1.20 0.04 38.22 20.91 7.77	0.002 1.91 1.05 0.39	ULSD, 15 ppm 40CFR89.112, 140CFR89.112, 140C	w 40CFR 60.4207 T 40CFR 60.4202(t T 40CFR 60.4202(t T Higher EF than Al
Pollutant PM PM10 PM2.5 SO2 NOX CO	Factor 0.04725 0.04725 0.04725 0.00153 1.5022 0.8219	Unit Ib/mmbtu Ib/mmbtu Ib/mmbtu Ib/mmbtu Ib/mmbtu Ib/mmbtu Ib/mmbtu	1.5022 0.8219 0.3054 1b/hr 1.20 1.20 1.20 0.04 38.22 20.91	ton/yr 0.06 0.06 0.002 1.91	Permitted Emission Li Reference 40CFR89.112, Tier 2, >560 HP 40CFR89.112, Tier 2, >560 HP 40CFR89.112, Tier 2, >560 HP ULSD, 15 ppmw S (40CFR80.510(a)) 40CFR89.112, Tier 2, >560 HP 40CFR89.112, Tier 2, >560 HP	Notes 40CFR 60.4202(b)(2) 40CFR 60.4202(b)(2) 40CFR 60.4202(b)(2) 40CFR 60.4207(b) 40CFR 60.4202(b)(2) 40CFR 60.4202(b)(2)	1.20 0.04 38.22 20.91 7.77	0.002 1.91 1.05 0.39	ULSD, 15 ppm 40CFR89.112, 140CFR89.112, 140C	w 40CFR 60.4207 T 40CFR 60.4202(I T 40CFR 60.4202(I T Higher EF than A
Pollutant PM PM10 PM2.5 SO2 NOX CO VOC	Factor 0.04725 0.04725 0.04725 0.00153 1.5022 0.8219 0.3054	Unit Ib/mmbtu Ib/mmbtu Ib/mmbtu Ib/mmbtu Ib/mmbtu Ib/mmbtu Ib/mmbtu	1.5022 0.8219 0.3054 1b/hr 1.20 1.20 1.20 0.04 38.22 20.91	ton/yr 0.06 0.06 0.002 1.91	Permitted Emission Li Reference 40CFR89.112, Tier 2, >560 HP 40CFR89.112, Tier 2, >560 HP 40CFR89.112, Tier 2, >560 HP ULSD, 15 ppmw S (40CFR80.510(a)) 40CFR89.112, Tier 2, >560 HP 40CFR89.112, Tier 2, >560 HP	Notes 40CFR 60.4202(b)(2) 40CFR 60.4202(b)(2) 40CFR 60.4202(b)(2) 40CFR 60.4207(b) 40CFR 60.4202(b)(2) 40CFR 60.4202(b)(2)	1.20 0.04 38.22 20.91 7.77	0.002 1.91 1.05 0.39	ULSD, 15 ppmx 40CFR89.112, 7 40CFR89.112, 7 40CFR89.112, 7	w 40CFR 60.4207 ft 40CFR 60.4202(t ft 40CFR 60.4202(t ft Higher EF than A
Pollutant PM PM10 PM2.5 SO2 NOX CO VOC	Factor 0.04725 0.04725 0.04725 0.04725 0.00153 1.5022 0.8219 0.3054 Gases Factor	Unit Ib/mmbtu Ib/mmbtu Ib/mmbtu Ib/mmbtu Ib/mmbtu Ib/mmbtu Ib/mmbtu Ib/mmbtu	1.5022 0.8219 0.3054 Ib/hr 1.20 1.20 1.20 0.04 38.22 20.91 7.77	ton/yr 0.06 0.06 0.002 1.91 1.05 0.39	Permitted Emission Li Reference 40CFR89.112, Tier 2, >560 HP 40CFR89.112, Tier 2, >560 HP 40CFR89.112, Tier 2, >560 HP ULSD, 15 ppmw S (40CFR80.510(a)) 40CFR89.112, Tier 2, >560 HP 40CFR89.112, Tier 2, >560 HP	Notes 40CFR 60.4202(b)(2) 40CFR 60.4202(b)(2) 40CFR 60.4202(b)(2) 40CFR 60.4207(b) 40CFR 60.4202(b)(2) 40CFR 60.4202(b)(2)	1.20 0.04 38.22 20.91 7.77 Factor	Compare to Source Unit	ULSD, 15 ppm 40CFR89.112, 1 40CFR89.112, 1 40CFR89.112, 1 40CFR89.112, 1 Using lb/hr	w 40CFR 60.4207 1 40CFR 60.4202(1 2 40CFR 60.4202(1 3 Higher EF than A 400/yr 400/yr 400/yr
Pollutant PM PM10 PM2.5 SO2 NOX CO VOC	Factor 0.04725 0.04725 0.04725 0.00153 1.5022 0.8219 0.3054	Unit Ib/mmbtu Ib/mmbtu Ib/mmbtu Ib/mmbtu Ib/mmbtu Ib/mmbtu Ib/mmbtu	1.5022 0.8219 0.3054 lb/hr 1.20 1.20 1.20 0.04 38.22 20.91 7.77	ton/yr 0.06 0.06 0.002 1.91 1.05 0.39	Permitted Emission Li Reference 40CFR89.112, Tier 2, >560 HP 40CFR89.112, Tier 2, >560 HP 40CFR89.112, Tier 2, >560 HP ULSD, 15 ppmw S (40CFR80.510(a)) 40CFR89.112, Tier 2, >560 HP 40CFR89.112, Tier 2, >560 HP 40CFR89.112, Tier 1, >560 HP	Notes 40CFR 60.4202(b)(2) 40CFR 60.4202(b)(2) 40CFR 60.4202(b)(2) 40CFR 60.4207(b) 40CFR 60.4202(b)(2) 40CFR 60.4202(b)(2) Higher EF than AP-42 GWP lb/hr 4,148.8	1.20 0.04 38.22 20.91 7.77 Factor GWP ton/yr 207.4	0.002 1.91 1.05 0.39 Compare to Source Unit	ULSD, 15 ppm 40CFR89.112, 1 40CFR89.112, 1 40CFR89.112, 1 40CFR89.112, 1 Using lb/hr	w 40CFR 60.4207 1 40CFR 60.4202(1 40CFR 60.4202(1 Higher EF than A ton/yr Source Testing
Pollutant PM PM10 PM2.5 SO2 NOX CO VOC	Factor 0.04725 0.04725 0.04725 0.04725 0.00153 1.5022 0.8219 0.3054 Gases Factor 163.08	Unit Ib/mmbtu Ib/mmbtu Ib/mmbtu Ib/mmbtu Ib/mmbtu Ib/mmbtu Ib/mmbtu Ib/mmbtu Ib/mmbtu	1.5022 0.8219 0.3054 Ib/hr 1.20 1.20 1.20 0.04 38.22 20.91 7.77	ton/yr 0.06 0.06 0.002 1.91 1.05 0.39	Permitted Emission Li Reference 40CFR89.112, Tier 2, >560 HP 40CFR89.112, Tier 2, >560 HP 40CFR89.112, Tier 2, >560 HP ULSD, 15 ppmw S (40CFR80.510(a)) 40CFR89.112, Tier 2, >560 HP 40CFR89.112, Tier 2, >560 HP 40CFR89.112, Tier 1, >560 HP GWP Multiplier 1 21 310	Mits Notes 40CFR 60.4202(b)(2) 40CFR 60.4202(b)(2) 40CFR 60.4202(b)(2) 40CFR 60.4207(b) 40CFR 60.4202(b)(2) 40CFR 60.4202(b)(2) Higher EF than AP-42 GWP lb/hr 4,148.8 3,5 10.3	GWP ton/yr 207.4 0.2 0.5	0.002 1.91 1.05 0.39 Compare to Source Unit Reference 40CFR98(Tbl. C-1) 40CFR98(Tbl. C-2) 40CFR98(Tbl. C-2)	ULSD, 15 ppm 40CFR89.112, 1 40CFR89.112, 1 40CFR89.112, 1 40CFR89.112, 1 Using lb/hr	w 40CFR 60.4207 1 40CFR 60.4202(1 40CFR 60.4202(1 Higher EF than A ton/yr Source Testing
Pollutant PM PM10 PM2.5 SO2 NOX CO VOC	Factor 0.04725 0.04725 0.04725 0.04725 0.00153 1.5022 0.8219 0.3054 Gases Factor 163.08 0.0066	Unit Ib/mmbtu	1.5022 0.8219 0.3054 lb/hr 1.20 1.20 1.20 0.04 38.22 20.91 7.77	ton/yr 0.06 0.06 0.06 0.09 1.91 1.05 0.39 ton/yr 207.4 0.0	Permitted Emission Li Reference 40CFR89.112, Tier 2, >560 HP 40CFR89.112, Tier 2, >560 HP 40CFR89.112, Tier 2, >560 HP ULSD, 15 ppmw S (40CFR80.510(a)) 40CFR89.112, Tier 2, >560 HP 40CFR89.112, Tier 2, >560 HP 40CFR89.112, Tier 1, >560 HP GWP Multiplier 1 21	Mits Notes 40CFR 60.4202(b)(2) 40CFR 60.4202(b)(2) 40CFR 60.4202(b)(2) 40CFR 60.4207(b) 40CFR 60.4202(b)(2) 40CFR 60.4202(b)(2) Higher EF than AP-42 GWP lb/hr 4,148.8 3,5	1.20 0.04 38.22 20.91 7.77 Factor GWP ton/yr 207.4 0.2	0.002 1.91 1.05 0.39 Compare to Source Unit Reference 40CFR98(Tbl. C-1) 40CFR98(Tbl. C-2)	ULSD, 15 ppm 40CFR89.112, 1 40CFR89.112, 1 40CFR89.112, 1 40CFR89.112, 1 Using lb/hr	w 40CFR 60.4207 1 40CFR 60.4202(1 2 40CFR 60.4202(1 3 Higher EF than A 400/yr 400/yr 400/yr
Pollutant PM PM10 PM2.5 SO2 NOX CO VOC CCO2 CCH4 N2O	Factor 0.04725 0.04725 0.04725 0.04725 0.00153 1.5022 0.8219 0.3054 Gases Factor 163.08 0.0066 0.0013	Unit Ib/mmbtu	1.5022 0.8219 0.3054 lb/hr 1.20 1.20 1.20 0.04 38.22 20.91 7.77	ton/yr 0.06 0.06 0.06 0.09 1.91 1.05 0.39 ton/yr 207.4 0.0	Permitted Emission Li Reference 40CFR89.112, Tier 2, >560 HP 40CFR89.112, Tier 2, >560 HP 40CFR89.112, Tier 2, >560 HP ULSD, 15 ppmw S (40CFR80.510(a)) 40CFR89.112, Tier 2, >560 HP 40CFR89.112, Tier 2, >560 HP 40CFR89.112, Tier 1, >560 HP GWP Multiplier 1 21 310	Mits Notes 40CFR 60.4202(b)(2) 40CFR 60.4202(b)(2) 40CFR 60.4202(b)(2) 40CFR 60.4207(b) 40CFR 60.4202(b)(2) 40CFR 60.4202(b)(2) Higher EF than AP-42 GWP lb/hr 4,148.8 3,5 10.3	GWP ton/yr 207.4 0.2 0.5	0.002 1.91 1.05 0.39 Compare to Source Unit Reference 40CFR98(Tbl. C-1) 40CFR98(Tbl. C-2) 40CFR98(Tbl. C-2)	ULSD, 15 ppm 40CFR89.112, 1 40CFR89.112, 1 40CFR89.112, 1 40CFR89.112, 1 Using lb/hr	w 40CFR 60.4207 1 40CFR 60.4202(1 2 40CFR 60.4202(1 3 Higher EF than A 400/yr 400/yr 400/yr
Pollutant PM PM10 PM2.5 SO2 NOX CO VOC CCO2 CH4 N2O	Factor 0.04725 0.04725 0.04725 0.04725 0.00153 1.5022 0.8219 0.3054 Gases Factor 163.08 0.0066 0.0013	Unit Ib/mmbtu	1.5022 0.8219 0.3054 lb/hr 1.20 1.20 1.20 0.04 38.22 20.91 7.77	ton/yr 0.06 0.06 0.06 0.09 1.91 1.05 0.39 ton/yr 207.4 0.0	Permitted Emission Li Reference 40CFR89.112, Tier 2, >560 HP 40CFR89.112, Tier 2, >560 HP 40CFR89.112, Tier 2, >560 HP ULSD, 15 ppmw S (40CFR80.510(a)) 40CFR89.112, Tier 2, >560 HP 40CFR89.112, Tier 2, >560 HP 40CFR89.112, Tier 1, >560 HP GWP Multiplier 1 21 310	Mits Notes 40CFR 60.4202(b)(2) 40CFR 60.4202(b)(2) 40CFR 60.4202(b)(2) 40CFR 60.4202(b)(2) 40CFR 60.4202(b)(2) Hofer 60.4202(b)(2) Higher EF than AP-42 GWP lb/hr 4,148.8 3.5 10.3 4,163	GWP ton/yr 207.4 0.2 0.5	0.002 1.91 1.05 0.39 Compare to Source Unit Reference 40CFR98(Tbl. C-1) 40CFR98(Tbl. C-2) 40CFR98(Tbl. C-2)	ULSD, 15 ppm 40CFR89.112, 1 40CFR89.112, 1 40CFR89.112, 1 40CFR89.112, 1 Using lb/hr	w 40CFR 60.4207 1 40CFR 60.4202 1 40CFR 60.4202 1 Higher EF than A ton/yr Source Testing GWP ton/yr
Pollutant PM PM10 PM2.5 SO2 NOX CO VOC CO2 CH4 N2O	Factor 0.04725 0.04725 0.04725 0.04725 0.00153 1.5022 0.8219 0.3054 Gases Factor 163.08 0.0066 0.0013	Unit Ib/mmbtu	1.5022 0.8219 0.3054 1b/hr 1.20 1.20 1.20 0.04 38.22 20.91 7.77	ton/yr 0.06 0.06 0.06 0.09 1.91 1.05 0.39 ton/yr 207.4 0.0 0.0	Permitted Emission Li Reference 40CFR89.112, Tier 2, >560 HP 40CFR89.112, Tier 1, >560 HP GWP Multiplier 1 21 310 TOTAL CO2e:	Mits Notes 40CFR 60.4202(b)(2) 40CFR 60.4202(b)(2) 40CFR 60.4202(b)(2) 40CFR 60.4202(b)(2) 40CFR 60.4202(b)(2) Hofer 60.4202(b)(2) Higher EF than AP-42 GWP lb/hr 4,148.8 3.5 10.3 4,163	GWP ton/yr 207.4 0.2 0.5 208	0.002 1.91 1.05 0.39 Compare to Source Unit Reference 40CFR98(Tbl. C-1) 40CFR98(Tbl. C-2) 40CFR98(Tbl. C-2)	ULSD, 15 ppm 40CFR89.112, 1 40CFR89.112, 1 40CFR89.112, 1 40CFR89.112, 1 Using lb/hr	w 40CFR 60.4202 To 40CFR 60.4202 To 40CFR 60.4202 To 40CFR 60.4202 To Higher EF than A ton/yr Source Testing GWP ton/yr
Pollutant PM PM10 PM2.5 SO2 NOX CO VOC reen House C CO2 CH4 N2O Hazardous Ai	Factor 0.04725 0.04725 0.04725 0.04725 0.00153 1.5022 0.8219 0.3054 Gases Factor 163.08 0.0066 0.0013	Unit Ib/mmbtu	1.5022 0.8219 0.3054 1b/hr 1.20 1.20 1.20 0.04 38.22 20.91 7.77	ton/yr 0.06 0.06 0.06 0.09 1.91 1.05 0.39 ton/yr 207.4 0.0 0.0	Permitted Emission Li Reference 40CFR89.112, Tier 2, >560 HP 40CFR89.112, Tier 2, >560 HP 40CFR89.112, Tier 2, >560 HP ULSD, 15 ppmw S (40CFR80.510(a)) 40CFR89.112, Tier 2, >560 HP 40CFR89.112, Tier 2, >560 HP 40CFR89.112, Tier 1, >560 HP 40CFR89.112, Tier 1, >560 HP GWP Multiplier 1 21 310 TOTAL CO2e: Hazardous Air Polluta Uncontrolled Emission (lb/hr)	Mits Notes 40CFR 60.4202(b)(2) 40CFR 60.4202(b)(2) 40CFR 60.4202(b)(2) 40CFR 60.4207(b) 40CFR 60.4202(b)(2) 40CFR 60.4202(b)(2) Higher EF than AP-42 GWP lb/hr 4,148.8 3.5 10.3 4,163	1.20 0.04 38.22 20.91 7.77 Factor GWP ton/yr 207.4 0.2 0.5 208 Con Emission (lb/hr)	0.002 1.91 1.05 0.39	ULSD, 15 ppm 40CFR89.112, 1 40CFR89.112, 1 40CFR89.112, 1 the Testing lb/hr Using GWP lb/hr	w 40CFR 60.4207 1 40CFR 60.4202 1 40CFR 60.4202 1 Higher EF than A ton/yr Source Testing GWP ton/yr
Pollutant PM PM10 PM2.5 SO2 NOX CO VOC reen House C CO2 CH4 N2O Hazardous Ai AP Pollutant ALS: Benzene	Factor 0.04725 0.04725 0.04725 0.04725 0.00153 1.5022 0.8219 0.3054 Gases Factor 163.08 0.0066 0.0013 ir Pollutants: Unc Factor 7.76E-04	Unit Ib/mmbtu	1.5022 0.8219 0.3054 1.20 1.20 1.20 1.20 20.91 7.77 1.77 1.77 1.77 1.77 1.77 1.77 1.77	lb/mmbtu lb/mbtu l	Permitted Emission Li Reference 40CFR89.112, Tier 2, >560 HP 40CFR89.112, Tier 2, >560 HP 40CFR89.112, Tier 2, >560 HP ULSD, 15 ppmw S (40CFR80.510(a)) 40CFR89.112, Tier 2, >560 HP 40CFR89.112, Tier 2, >560 HP 40CFR89.112, Tier 1, >560 HP CWP Multiplier 1 21 310 TOTAL CO2e: Hazardous Air Polluta Uncontrolled Emission (lb/hr) 0.11 1.97E-02	Mits Notes 40CFR 60.4202(b)(2) 40CFR 60.4202(b)(2) 40CFR 60.4202(b)(2) 40CFR 60.4202(b)(2) 40CFR 60.4202(b)(2) 40CFR 60.4202(b)(2) Higher EF than AP-42 GWP lb/hr 4,148.8 3.5 10.3 4,163 Emission (ton/yr) 0.01 9.87E-04	GWP ton/yr 207.4 0.2 0.5 208 Com Emission (lb/hr) 0.11 1.97E-02	0.002 1.91 1.05 0.39	ULSD, 15 ppm 40CFR89.112, 1 40CFR89.112, 1 40CFR89.112, 1 the Testing lb/hr Using GWP lb/hr	w 40CFR 60.4207 1 40CFR 60.4202(1 40CFR 60.4202(1 Higher EF than A ton/yr Source Testing GWP ton/yr Calculation Reference AP 42 T3.4-3 AP 42 T3.4-3
Pollutant PM PM10 PM2.5 SO2 NOX CO VOC Green House C CO2 CH4 N2O Hazardous Ai AP Pollutant ALS: Benzene Toluene	Factor 0.04725 0.04725 0.04725 0.04725 0.00153 1.5022 0.8219 0.3054 Gases Factor 163.08 0.0066 0.0013 ir Pollutants: Unc	Unit Ib/mmbtu	1.5022 0.8219 0.3054	ton/yr 0.06 0.06 0.06 0.002 1.91 1.05 0.39 ton/yr 207.4 0.0 0.00	Permitted Emission Li Reference 40CFR89.112, Tier 2, >560 HP 40CFR89.112, Tier 1, >560 HP 40CFR89.112, Tier 1, >560 HP GWP Multiplier 1 21 310 TOTAL CO2e: Hazardous Air Polluta Uncontrolled Emission (lb/hr) 0.11 1.97E-02 7.15E-03	Mits Notes 40CFR 60.4202(b)(2) 40CFR 60.4202(b)(2) 40CFR 60.4202(b)(2) 40CFR 60.4202(b)(2) 40CFR 60.4202(b)(2) Higher EF than AP-42 GWP lb/hr 4,148.8 3.5 10.3 4,163 Emission (ton/yr) 0.01 9.87E-04 3.57E-04	1.20 0.04 38.22 20.91 7.77 Factor GWP ton/yr 207.4 0.2 0.5 208 Con Emission (lb/hr) 0.11	0.002 1.91 1.05 0.39	ULSD, 15 ppm 40CFR89.112, 1 40CFR89.112, 1 40CFR89.112, 1 the Testing lb/hr Using GWP lb/hr	w 40CFR 60.4207 10.40CFR 60.4202(10.40CFR 60.420CFR 60.420CFR 60.420CFR 60.40CFR 60.420CFR 60.40CFR
Pollutant PM PM10 PM2.5 SO2 NOX CO VOC Green House C CO2 CH4 N2O Hazardous Ai AP Pollutant ALS: Benzene Toluene Xylenes Propylene	Factor 0.04725 0.04725 0.04725 0.04725 0.00153 1.5022 0.8219 0.3054 Gases Factor 163.08 0.0066 0.0013 ir Pollutants: Unc Factor 7.76E-04 2.81E-04 1.93E-04 2.79E-03	Unit Ib/mmbtu	1.5022 0.8219 0.3054 1b/hr 1.20 1.20 1.20 0.04 38.22 20.91 7.77 1b/hr 4,148.8 0.2 0.0 Control Factor 7.76E-04 2.81E-04 1.93E-04 2.79E-03	ton/yr 0.06 0.06 0.06 0.002 1.91 1.05 0.39 ton/yr 207.4 0.0 0.00 0.00	Permitted Emission Li Reference 40CFR89.112, Tier 2, >560 HP 40CFR89.112, Tier 1, >560 HP OCFR89.112, Tier 1, >560 HP I 21 310 TOTAL CO2e: Hazardous Air Polluta Uncontrolled Emission (lb/hr) 0.11 1.97E-02 7.15E-03 4.91E-03 7.10E-02	Mits Notes 40CFR 60.4202(b)(2) 40CFR 60.4202(b)(2) 40CFR 60.4207(b) 40CFR 60.4202(b)(2) 40CFR 60.4202(b)(2) 40CFR 60.4202(b)(2) Higher EF than AP-42 GWP lb/hr 4,148.8 3.5 10.3 4,163 Emission (ton/yr) 0.01 9.87E-04 3.57E-04 2.45E-04 3.55E-03	GWP ton/yr 207.4 0.2 0.5 208 Con Emission (lb/hr) 0.11 1.97E-02 7.15E-03 4.91E-03 7.10E-02	Reference 40CFR98(Tbl. C-1) 40CFR98(Tbl. C-2) 40CFR98(Tbl. C-2) 40CFR98(Tbl. C-1) rolled Emission (ton/yr) 0.01 9.87E-04 3.57E-04 2.45E-04 3.55E-03	ULSD, 15 ppm 40CFR89.112, 1 40CFR89.112, 1 40CFR89.112, 1 the Testing lb/hr Using GWP lb/hr	w 40CFR 60.4207 To 40CFR 60.4202(To 40CF
Pollutant PM PM10 PM2.5 SO2 NOX CO VOC Creen House C CO2 CH4 N2O Hazardous Ai AP Pollutant ALS: Benzene Toluene	Factor 0.04725 0.04725 0.04725 0.04725 0.00153 1.5022 0.8219 0.3054 Gases Factor 163.08 0.0066 0.0013 ir Pollutants: Unc Factor 7.76E-04 2.81E-04 1.93E-04	Unit Ib/mmbtu	1.5022 0.8219 0.3054 1b/hr 1.20 1.20 1.20 1.20 1.777 1b/hr 4,148.8 0.2 0.0 0.0 Contro Factor 7.76E-04 2.81E-04 1.93E-04	lb/mmbtu Permitted Emission Li Reference 40CFR89.112, Tier 2, >560 HP 40CFR89.112, Tier 1, >560 HP GWP Multiplier 1 21 310 TOTAL CO2e: Hazardous Air Polluta Uncontrolled Emission (lb/hr) 0.11 1.97E-02 7.15E-03 4.91E-03	Mits Notes 40CFR 60.4202(b)(2) 40CFR 60.4202(b)(2) 40CFR 60.4202(b)(2) 40CFR 60.4202(b)(2) 40CFR 60.4202(b)(2) 40CFR 60.4202(b)(2) Higher EF than AP-42 GWP lb/hr 4,148.8 3.5 10.3 4,163 Emission (ton/yr) 0.01 9.87E-04 3.57E-04 2.45E-04	GWP ton/yr 207.4 0.2 0.5 208 Com Emission (lb/hr) 0.11 1.97E-02 7.15E-03 4.91E-03	Reference 40CFR98(Tbl. C-1) 40CFR98(Tbl. C-2) 40CFR98(Tbl. C-2) 40CFR98(Tbl. C-1) rolled Emission (ton/yr) 0.01 9.87E-04 3.57E-04 2.45E-04	ULSD, 15 ppm 40CFR89.112, 1 40CFR89.112, 1 40CFR89.112, 1 the Testing lb/hr Using GWP lb/hr	ton/yr Calculation Refere	